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NEWS SUMMARY

GENERAL

Garrison rebels set to defy ultimatum

A Bangladesh rebel garrison controlling the port city Chittagong was set to defy an ultimatum to surrender to the Dacca authorities by early today. It claimed the support of the navy, based at the port.

The rebels' commander is said to have been the assassin of President Zia-ur Rahman on Saturday. Back Page

Soldier killed

An Army bomb disposal expert was killed in County Down as a device exploded. Threat to ban loyalist group, Back Page

Soames meeting

Civil Service union leaders are expected to meet Lord Soames today but weekend talks brought no improvement to their pay offer. Back Page

Barcelona blast

A television relay station was blown up outside Barcelona, where King Juan Carlos took the salute at Spain's Armed Forces Day. Security tight, Page 2

Cuts challenge

Cuts in services for the disabled are unlawful and 15 charities are ready to challenge local authorities in the courts, Alfred Morris, Labour's former Minister for the Disabled, said.

Hooligans move

Britons convicted overseas for violence should have their passports temporarily withdrawn, said Labour MP Gwilym Roberts after football fans rioted in Basle.

Fees 'hit trade'

Increased fees for overseas students were condemned by the London Chamber of Commerce and Industry as detrimental to foreign trade.

Campaigner dies

Humanitarian Barbara Ward, the Baronnes Jackson of Lodsworth, died aged 67. Obitnary, Page 4

Cardinal buried

Hundreds of thousands filed through Warsaw's Victory Square as Cardinal Stefan Wyszynski was buried in St. John's Cathedral crypt.

Minister escapes

Algerian Foreign Minister Mohamed Benyahia, a U.S. hostage mediator, suffered multiple fractures but survived a Mali plane crash which killed three crew members.

Shock messages

Earthquake-like electric shock signals sent underground will carry messages to Soviet submarines, says Jane's Military Guide.

Villeneuve victor

Canadian Gilles Villeneuve drove a Ferrari to victory in the Monaco grand prix, beating Australian Alan Jones (Williams) and Jacques Laffite of France (Talbot Ligier).

Gone for Burton

Bass is to cease brewing by the Burton Union system after 120 years. Page 5

Briefly . . .

Iranian thief had four fingers amputated.

First class London Midlands region rail travel ends today.

Pet market protesters in London's Club Row, chained to lamp posts, were arrested.

BUSINESS

Alarm at 'delay' in spending plans

● **LEADERS** of the coal, rail and steel unions' "triple alliance" are alarmed at what they feel are delays over public investment plans, particularly in the rail and mining industries, and are seeking urgent talks with Government Ministers. Page 5; Investment restrictions attacked, Page 4

● **NUCLEAR** industry will review the reference design of the Sizewell power station, to try to trim its construction cost. Back Page

● **HIGH RATES** are not an important factor in unemployment levels, despite government claims to the contrary, according to a new survey. Page 4

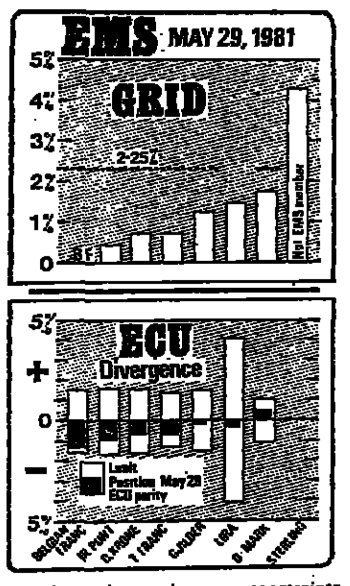
● **LOAN GUARANTEE** scheme, for clearing bank loans of up to £75,000 to small businesses without enough security for normal loans, will be launched by the Government today. Page 4

● **MERRILL LYNCH**, Wall St securities group, is to enter the UK banking market with a cash management account aimed at attracting high-income customers. Page 5

● **CHINA** had a budget surplus in the first four months this year after the 12.1bn yuan (£3.37bn) deficit for 1980, but has not said how much.

● **LONDON SUMATRA** Plantations board recommended that all shareholders accept the offer for their shares from Harrisons and Crosfields. Page 14

● **TUNNEL HOLDINGS**, cement and chemicals group, upgraded profit and dividend estimates for 1980-81 in its fight against a revised £108m bid from Thos. W. Ward. Page 14



The chart shows the two constraints on European Monetary System exchange rates. The upper grid, based on the weakest currency in the system, defines the cross rates from which no currency (except the lira) may move more than 2¼ per cent. The lower chart gives each currency's divergence from its "central rate" against the European Currency Unit (ECU), itself a basket of European currencies.

● **LAST WEEK** was a much better time for the French franc. It rose sharply in the European Monetary System, and was at one time the second strongest currency. This contrasts sharply with its performance three weeks ago, when it fell outside EMS official limits as a result of the election of a socialist president. It finished around the middle of the system, behind the D-mark, Dutch guilder and Italian lira. The initial strength of the dollar led to intervention by several European banks, including the German Bundesbank in defence of the D-mark, while the Bank of Italy introduced controls to support the lira. Later in the week the lower trend in U.S. interest rates took most of the pressure off European currencies.

CONTENTS

For latest Share Index phone 01-246 8026

TUC strives to maintain momentum of People's March

BY JOHN LLOYD, LABOUR CORRESPONDENT

THE People's March for Jobs, its original 500 swollen to 100,000, reached Trafalgar Square in London yesterday on the self-confident note that this traditional centre of protest marked not the end but only the end of a beginning.

The TUC General Council plans a massive lobby of Westminster by young unemployed, probably in late summer. Other *mooted proposals include a* lobby of Parliament by women, *and a much larger march.*

The Campaign for Economic and Social Advance, the organising centre for demonstrations on unemployment, is likely to be substantially increased under the pressure, especially from Left-wing General Council members and the generally-perceived success of the 31-day, 280-miles march.

Mr Arthur Scargill, president of the Yorkshire area of the National Union of Mineworkers *and a recent addition to the* General Council, gained the largest ovation of the rally when he called on the TUC to give a lead "and threaten the Government with direct action."

Mr Scargill said: "We are not prepared to see our children deprived of the right to work. If that means direct action on the part of the trade union movement, then that's the consideration that our movement will have to give."

Mr Ken Gill, general secretary of the white-collar engineering union AUEW-Tass and a leading member of the General Council's Left, echoed Mr Scargill's point when he told the crowd: "The fight back has begun and the TUC must make sure that the momentum is not lost."

While other council members later played down Mr Scargill's direct action call, they agreed *that the march had achieved a* significant propaganda victory *and should be built on.*

The theme of unity, stressed by many speakers at both Hyde Park and Trafalgar Square, was twice honoured in its breach when Mr Denis Healey, deputy leader of the Labour Party, and Mr Richard Holme, chairman of the Liberal Party, came to the microphones and were loudly booed.

However, Mr Michael Foot, *the Labour Party leader, was* cheered when he told crowds in *Hyde Park that the number of* people out of work was now the highest in the country's history.

"The Government's propaganda machine—by which I mean primarily the Prime Minister — is continually attempting to pretend that the situation is much less serious than it is. But this great march has helped to tell the country the truth."

Echoes of the divisions in the

Continued on Back Page

Israel hints at impatience in missile crisis

BY DAVID LENNON IN TEL AVIV

ISRAEL hinted yesterday that its patience is running out over the diplomatic efforts to resolve the Lebanese missile crisis, though it is willing to give the U.S. one more opportunity to persuade Syria to remove its anti-aircraft missiles from Lebanon's Beka'a Valley.

The implied threat was that if the diplomatic efforts fail to bring about the withdrawal *Israel would exercise the* original option of military action against the missiles which was frustrated a month ago by bad weather and a subsequent U.S. appeal for time to reach a peaceful solution.

Mr Menahem Begin, the Israeli Prime Minister, is under pressure to resolve the crisis one way or another before the June 30 general elections, and the renewed threat is seen as an attempt to put further pressure on the U.S. to intensify its efforts to find an acceptable peace formula.

Israel also yesterday rejected a U.S. request to halt its attack on the Palestinian guerrillas in Lebanon while the diplomatic attempt to resolve the crisis continues.

The Cabinet held a detailed discussion on the situation in Lebanon along the Syrian-Israeli border. Israel believes the Syrians have been intensifying their military preparations along the border and the build-up of Syrian forces is responsible for the growing impatience in Jerusalem with the diplomatic effort.

According to reports to the Cabinet, Mr Philip Habib, the special U.S. mediator, is not expected to return to the Middle East this week as originally scheduled, and his date of return is not yet clear. Mr Habib returned to Washington *last week after three weeks* of shuttle diplomacy in the region failed to produce a solution to the missile problem, though it did ward off the threatened Israeli-Syrian military conflict.

The Cabinet yesterday endorsed Mr Begin's rejection of Mr Habib's request for restraint towards the Palestinians while he continues to seek a peaceful solution to the missile problem. The Ministers agreed that the mediation mission concerned the missiles only and not the broader Palestinian issue.

Israel launched air strikes and a land raid against Palestinian guerrillas in Lebanon on Thursday, only a day after Mr Habib left the region. Washington, surprised by the swift Israeli action, expressed its concern over the renewal of the attacks after a month-long respite through Mr. Samuel Lewis, its ambassador in Tel Aviv, who met Mr Begin twice over the weekend.

AT LEAST seven people were killed and 80 wounded yesterday at artillery battles in Beirut and around the Christian town of Zahle in eastern Lebanon which shattered a five-day lull in fighting, Ishsan Hijazi reports from Beirut.

It was feared the violence would further undermine President Elias Sarkis's efforts to convene a meeting of a special Arab committee to help ease the Lebanese crisis.

Israel reportedly told Syria it was still committed to helping the Lebanese Christians.

Industry more confident of prospects

BY DAVID MARSH

INDUSTRY has become more optimistic about the economic outlook, amid increasing signs that the steep fall in demand of the past year is levelling out, according to two surveys of business confidence published today.

Although the worst of the recession appears to be over, there is no sign of recovery. The economy is generally expected to remain flat in the next few months.

The latest monthly trends inquiry by the Confederation of British Industry shows manufacturers' order levels remain weak but have stopped falling, and that the rate of stock reductions is slowing.

The latest Financial Times business opinion survey, covering consumer sectors as well as manufacturing industry, paints a slightly brighter picture. It shows that the index of optimism about the business outlook improved in May for the third successive month, and now stands at the highest for more than 18 months.

The FT survey suggests that the recent fall of sterling and buoyant retail sales have helped to boost industry's confidence.

Last month the survey covered the electrical engineering, industry, motor vehicles and consumer durables, and stores and consumer services.

It shows that orders, deliveries and production prospects have picked up, continuing the recovery which started in the new year.

Employment prospects remain gloomy in spite of the slight upturn in demand, and companies still generally intend to cut their workforces to maintain productivity improvements.

An end to the orders decline is also reflected in the CBI survey. It shows that the number of companies expecting to reduce output during the next four months is balanced by those forecasting increases. Earlier this year, companies were overwhelmingly predicting production cuts.

A key factor dictating the strength of any recovery will be what happens to stock levels. The CBI reports that stocks of finished goods are still historically high. Although the number of companies reporting excessive inventories has been falling for six months, it expects destocking to continue until the second quarter next year, though at a decreasing rate.

In the FT survey, the sectors questioned last month mainly predicted increases in stocks during the next 12 months.

Pessimism on early upturn

BY PETER RIDDELL, ECONOMICS CORRESPONDENT

ECONOMIC ACTIVITY in the UK is likely to be broadly flat in the next year with at best only a small recovery in 1982, several leading non-monetarist economists say in forecasts published today.

The National Institute of Economic and Social Research, the Confederation of British Industry's staff economists and stockbrokers Phillips and Drew agree on a gloomy picture.

Output measured by real gross domestic product is likely to be sluggish, falling by 2.5 per cent on average this year before rising by only 0.5 per cent in 1982, and unemployment is likely to continue to rise, from an adult total of 2.5m now to about 3m by the end of 1982.

This view contrasts with the more optimistic references in recent ministerial speeches predicting that a steady recovery is under way.

Some broadly monetarist groups such as the London Business School are less pessimistic about output, forecasting a drop of 1.5 per cent this year followed by a rise of 2 per cent in 1982.

There are several differences in the detailed projections of the non-monetarists, partly resulting from their views about the scale of the rundown in stock levels.

The CBI economists expect output to decline slightly during the rest of this year, reflecting a drop in consumer spending and exports, followed by a slow pick-up from the start of 1982. Other forecasters believe that the drop in output may have stopped.

All the non-monetarist groups doubt whether there will be any sustained recovery in activity in the next 18 months, apart from any temporarily favourable effects of the slowdown in destocking.

The forecasters, including some monetarists, are agreed that the rapid slowdown in the inflation rate is coming to an end, and expect at best an annual rate of 8.5 per cent by the end of 1982.

Phillips and Drew forecast a slight re-acceleration towards the end of 1982 in response to the weakness of sterling and some restoration of domestic *profit margins.*

COMPARISON OF FORECASTS

Percentage change in real terms compared with previous year

		National Institute	Confederation of British Industry	Phillips and Drew
Gross Domestic Product	1981	−1.2	−3.0	−3.1
	1982	−0.1	+0.3	+1.5
Consumer spending	1981	+0.6	−0.4	−0.7
	1982	0.0	−0.2	+1.0
Exports	1981	−3.1	−6.0	−3.6
	1982	+3.5	+2.4	+5.3
Imports	1981	−4.8	−4.0	−1.3
	1982	+7.8	+5.5	+9.3
Consumer prices inflation, 4th qtr.	1981	10.5	10.9	10.5
	1982	8.5	8.9	10.8
Public sector borrowing	1981-82	9.5	10.7	11.0

The overall prospects lead the National Institute to believe in its latest quarterly review that a reflationary package could "raise the level of output and check the rise in unemployment, with relatively little, if any, cost in worsening the figures for prices."

Such reflation is "needed in *the short-term simply to make* a very bad prospect slightly less bad." The institute calls for reforms of the wage bargaining system and for structural changes in industrial and educational policy.

It is sceptical about government claims that the current squeeze will reduce inflation permanently or produce a "leaner, fitter" industry.

Editorial Comment, Page 12; NIESR review, Page 6; FT survey, Page 17; Brokers' reports, Page 4; Samuel Brittan on the Institute of Economic Affairs, Page 10

Reagan urges Democrats to accept tax cut deal

BY DAVID BUCHAN IN WASHINGTON

PRESIDENT RONALD REAGAN has summoned Democratic Party leaders to the White House today to warn them to accept a speedy tax-cutting compromise or face a defeat similar to that last month over budget spending.

This near-ultimatum was outlined by Mr Donald Regan, treasury secretary, in a television interview yesterday. He said White House patience and time were "slipping away." Thus the Administration was ready to make what he called minor changes in its original tax *plan which it believes will be* enough to win support again from Southern conservative Democrats.

The Treasury chief cited the following modifications which the Administration was considering and which are close to a plan drafted by Senator Robert Dole, Republican chairman of the Senate Finance Committee:

● The starting date for cuts in personal income tax would be shifted from July 1 to October 1, which is also the start of a new fiscal year.

● The income tax cut would be 25 per cent over three years, not 30 per cent as earlier pledged. The first year cut would be by 5 per cent, not 10 per cent — thus reducing the 1981-82 Budget deficit.

● Depreciation tax changes for business investment would be made "slightly less" liberal, Mr Regan said, in order to reduce marginally the tax revenue loss from the original Administration proposal.

Mr Regan also said that although the Administration had insisted on a "clean" tax bill with few provisions so that Congress could pass it quickly, if the Democratic leadership would agree to fast action the Administration was ready to see other tax changes, such as the Democratic proposal for an immediate cut from 70 per cent to 50 per cent in the top rate on unearned income.

Mr. Regan stressed that the President had not tied his hands on this compromise plan and that he would make a final judgment only when he saw what his Treasury Secretary could negotiate. However, it is clear the changes have full blessing from the Oval Office.

Options cloud over market

BY CHRISTINE MOIR

CHANGES n the membership of the Traded Options Market which would have fundamental repercussions on the entire structure of the Stock Exchange are being confidentially discussed by senior exchange members.

The Stock Exchange is founded on the principle that only professional jobbers and brokers who are members of the exchange may trade on the floor.

But some influential members believe the only way to ensure the success of the Traded Options market is to allow outsiders to make markets in the contracts.

The implications for the Exchange's structure are so serious that some Stock Exchange councillors believe the subject should not be discussed at all, even in confidence.

Nevertheless, proposals for a full study of the matter are gaining support.

The London Traded Options Market is only in its infancy but the eight-year-old market created by the Chicago Board of Trade has an annual turnover of more than $45bn.

The Chicago market permits members of the public with only modest amounts of capital to trade in the completed options contracts. This is widely seen as one of the main reasons for its success.

Supporters of the scheme to bring in the public as traders argue that an option market flourishes only where a wide spectrum of forecasts about a stock's future price can be accommodated.

The London market has only six market makers, five jobbers and a broker permitted under a special rule to act as a principal in this case.

The argument runs that this number reflects the maximum number of possible views about, say, GEC's future share price.

Even if every jobber became involved in the traded options market, the maximum number of views would be 17. This, the proponents believe, would still fall short of providing a true spectrum of views.

ARMED FORCES' DAY HELD AMID TERRORISM FEARS

Spain tightens security for parade

BY ROBERT GRAHAM IN BARCELONA

KING JUAN CARLOS took the salute at Spain's armed forces' day yesterday amid heavy security following a week of fears of terrorist activity.

Police dogs checked stands and special forces were stationed on rooftops along the route through the centre of Barcelona. The King arrived in an open Rolls-Royce, formerly used by Franco, in spite of fears for his safety.

The parade began with a 10-minute flypast of 111 aircraft and 44 helicopters. The King took the salute for just over two hours as 13.163 men and women representing each arm of the three services, and 1,138 vehicles filed past.

Fears of a major incident stemmed from last weekend's 36-hour seizure of a Barcelona bank with terrorists bargaining the release of hostages against the freeing of key officers involved in the abortive February coup. The Government claimed this was mounted by the extreme Right.

A freshly-dug tunnel close to the parade route was discovered subsequently and confused versions about the bank seizure appeared.

Before the parade there were three principal concerns—an attempt on the king's life, a violent disruption of the military ceremonies of extremist action directed against Catalonian autonomy.

The parade was the culmination of three days of military celebrations attended by the king and virtually all the Cabinet. Three months after the abortive coup the ceremonies have been designed to impress upon Spaniards that the armed forces are an integral part of democratic society, and that Spaniards care for their people in uniform. Television and the media have hammered this message home for the past week.

This has been a hard message to digest when 32 officers, including three of the best-known generals, are awaiting trial on charges of rebellion.

The ambiguity of the situation was underlined by the presence in yesterday's parade of tanks of the crack Brunete Division based in Madrid. Its commander was removed recently as a result of his role in the coup attempt.

There is a widespread feeling that the military effectively are dictating policy to the Government.

The celebrations have had more than symbolic significance. The armed forces have made an important gesture towards accepting regional autonomy in agreeing that the parade takes place with the Catalan flag beside the Spanish flag.

King Juan Carlos . . . took salute

This is the first time the armed forces have permitted this to happen, so sensitive have they been about Spain's unity symbolised by the red and gold Spanish flag.

One of the military bands played a Catalan nationalist song

North-South Commission draws up strategy for talks

BY LESLIE COLITT IN BERLIN

THE FATE of the planned North-South conference in Mexico in October may hinge on the position of France and West Germany. which, until recently, resisted any sweeping changes in the relationship between industrial countries and the Third World.

This is the opinion of members of the North-South Commission under Herr Willy Brandt which ended a four-day meeting in West Berlin yesterday to work out its strategy for the talks.

If West Germany moved closer to the views on aiding developing nations held by the French President M Francois Mitterrand, it would effectively isolate Britain, members note.

Mr. Edward Heath the former UK Prime Minister and one of the commission members, charged that London's position has been to display "injured innocence" when accused of opposing reform.

Herr Brandt said Chancellor Helmut Schmidt was greatly impressed by what he had heard in Paris from President Mitterrand on the subject of north-south relations. But when he met with the Brandt Commission on Friday evening, the Chancellor's views sounded little changed.

West Germany, which spent 0.44 per cent of its gross national product on overseas aid last year, has taken the position that the most helpful role it can play is to continue as the leading customer for Third World exports.

The United Nations' target for western countries is to give 0.75 per cent of their GNP in official aid, a figure reached or exceeded by the Netherlands, Denmark and Sweden.

Britain has come in for considerable criticism among the developing countries for lowering its percentage of official aid from 0.52 per cent in 1979 to 0.34 per cent last year.

Spending row brews in Bonn coalition

By Roger Boyes in Bonn

WEST GERMANY'S ruling Social Democrat-Free Democrat coalition is heading for a major row over the need for public spending cuts.

This emerged at the Free Democratic Party (FDP) conference over the weekend at which Herr Hans Dietrich Genscher, FDP chairman, and Foreign Minister, called for deep cuts in social welfare spending, child allowances, educational grants and rent assistance—as well as a further reduction in subsidies.

Herr Genscher said this was not only a pressing financial necessity but also imperative if private initiative and freedom were to flourish.

He hinted that he had tried unsuccessfully to push through such cuts in the 1981 budget which is due to go through its second and third parliamentary reading this week.

Instead, the main thrust of the FDP's "campaign of a thousand cuts"—as it was described by delegates yesterday—will be felt during the summer and early autumn, as both the Social Democrats (SDP) and the Free Democrats try to draft the 1982 budget.

Dutch-West German steel group seeks big state subsidies

BY KEVIN DONE IN FRANKFURT

State subsidies of several hundred million D-Marks are being sought by the loss-making Dutch-West German steel group Estel to support the restructuring and reduction of its steelmaking in Dortmund.

The supervisory board of Estel Hoesch, the West German operating company of Trans National Estel group, has voted unanimously for the reorganisation programme. This will mean the gradual loss of 8,000 jobs and a reduction of steelmaking capacity to about 4m tonnes a year.

The plan was approved by all workers' representatives on the supervisory board. Steelmaking and processing will be concentrated on one site in Dortmund, the Westfalenhuette, and the company's other two steelworks there—Phoenix and Union—closed.

Estel Hoesch's crude steelmaking capacity in Dortmund has been brought down from 7.2m tonnes a year to about 5.5m tonnes a year since 1979.

The workforce has been cut by 4,200 to some 21,000, and is to fall to about 13,000 by the end of the 1980s.

Hoesch accounted for about a half Estel's 1980 crude steel production of 10.1m tonnes, but produced two-thirds of last year's record net loss of Fl 488.1m (£91.49m).

Estel has been operating deeply in the red for the past six years with accumulated losses of about DM1.4bn (£29m).

It is clear the company feels it cannot finance the restructuring without funds from the federal Government and the state administration in North Rhine-Westphalia.

Talks between Herr Johannes Rau, the state's Prime Minister, and West German Chancellor Helmut Schmidt have failed to open the way for the financial support sought by the troubled Ruhr steel industry.

Estel Hoesch stressed at the week-end that its restructuring is in line with policy calls from Bonn and European Commission to cut and modernise production capacities: so it should qualify for financial support.

The call for subsidies comes at an embarrassing time for Chancellor Schmidt. He is planning to write to heads of EEC member states this week calling for a rapid dismantling of state steel subsidy programmes.

Free Democrats back CDU mayor in W. Berlin

BY OUR BONN STAFF

WEST GERMANY'S Free Democratic Party (FDP) is prepared to "tolerate" a Christian Democratic mayor in West Berlin, thus signalling the end of weeks of uncertainty about the government of the divided city.

After talks yesterday with Herr Hans Dietrich Genscher, the FDP chairman and Foreign Minister, a number of Free Democratic deputies from Berlin said they would give tacit backing to Herr Richard von Weizsaecker, the CDU acting mayor.

In state elections earlier this month, the CDU succeeded in toppling the Social Democrat-Free Democrat coalition in Berlin but it was unable to secure an absolute majority. This forced Herr von Weizsaeker to approach the Free Democrats and ask for their co-operation in forming a new government—but the Berlin FDP refused, preferring to stay in opposition.

The FDP party leadership was furious at their decision, on the grounds that it would plunge Berlin—always a vulnerable spot in international politics—into a long period of political uncertainty. Herr Genscher had been putting pressure on the Berlin FDP to change its mind and the breakthrough evidently came yesterday.

When the Berlin senate votes on Herr von Weizsaeker next month, the Free Democrats will give the CDU a "fair chance," said one Berlin FDP deputy yesterday.

This means that Herr von Weizsaeker will almost certainly get the required number of votes with the help of the FDP—but the party is still strictly against a formal coalition as this would be a serious blow to the Social Democrat-Free Democrat alliance in Bonn.

Pre-election French poll shows swing to Socialists

BY TERRY DODSWORTH IN PARIS

A STRONG SWING of support towards the French Socialist Party is shown in an opinion poll which suggests the Left could emerge with a working parliamentary majority from the legislative elections.

The IFOP poll, published by the magazine Le Point, supports claims that the Socialist Party is benefiting from the victory of M Francois Mitterrand, its former leader, in the presidential elections.

In the first round of the legislative polls on June 14, the Socialists are shown winning 36 per cent of the vote, against 28 per cent in the same round of the presidential elections, and 24.7 per cent at this stage of the parliamentary elections in 1978.

A combination of the Socialist support with the 14 per cent for the Communists and 2.5 per cent to the extreme Left would give the Leftist parties a little over 52 per cent.

The Left will be facing a vigorous campaign from M Jacques Chirac, the Gaullist leader who has become de facto head of a Right-wing alliance.

The IFOP poll suggests the Socialists are winning support from parts of the Right.

● The Government has authorised the start-up of two 900 megawatt nuclear power stations which will be coupled to other units on existing sites at Gravelines in the north and Tricastin in the Rhone valley.

Forlani in bid to form new Government

By James Buxton in Rome

SIG ARNALDO FORLANI, who resigned last week as Italy's Prime Minister in the wake of the P-2 masonic lodge scandal which brought down the Government, today starts meeting representatives of other parties at the request of President Sandro Pertini, in an attempt to form a new Government.

Though he has been strongly backed as Prime Minister designate by his own Christian Democrat Party the opposition of the Socialist Party to another Forlani coalition is a major obstacle. By Tuesday, the prospects for Sig Forlani's success or failure should be clear.

Dutch appoint politicians as mediators

By Charles Batchelor in Amsterdam

NEGOTIATIONS about the shape of the next Dutch Government will begin this week following the appointment of two leading Christian Democratic politicians to act as mediators.

Queen Beatrix named Mr Ruud Lubbers, 42, Deputy Chairman of the Parliamentary party, and Mr Jan de Koning, 54, outgoing Minister of Development Aid, as "informateurs."

Their task will be to reconcile the views of the political parties and pave the way for the nomination of a "formateur" who would attempt to form a government.

Rallis warning to U.S.

BY VICTOR WALKER IN ATHENS

MR GEORGE RALLIS, the Greek Prime Minister, has indirectly warned the U.S. it is jeopardising the future status and operation of U.S. military bases in Greece by delaying signature of a defence pact under negotiation for the past seven months.

The Prime Minister said over the weekend that substantial progress has been made in the negotiations but a few minor technical issues still remained to be settled.

He said it would be futile for his Government to sign the agreement unless it could be debated and passed by the present Parliament before it goes into summer recess early in July.

The ruling New Democracy Pary commands 177 out of 300 seats in Parliament and should have no difficulty passing the agreement.

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Number of tourists to China shows rapid rise

By Colina MacDougall

CHINA'S TOURIST industry has become an important and growing foreign exchange earner with a rise in revenue in the first quarter of this year of almost 50 per cent. Last year it produced an income of \$617m, nearly 2 per cent of its trade turnover of \$37.5bn and more than enough to cover its reported trade deficit of \$500m.

Xinhua news agency figures show that earnings from tourism in the January-March period of 1981 were \$146m, a 48 per cent increase on the same period last year. The number of tourists, including overseas Chinese, was 2m, half as many again as in the first quarter last year, a significant factor since the winter months are probably the least attractive to the tourism industry.

Last year China was host to about 530,000 foreign visitors and more than 5m Overseas Chinese from Hong Kong and elsewhere.

The 1980 figures, and plans to increase the numbers annually by 30 per cent between now and 1985, were revealed by Mr Han Kehua, the Director General of the State Administration for Travel and Tourism, at a recent briefing.

Accommodation in major tourist centres had been added for 4,300 people since last year, Mr. Han said. The state would continue investment in these centres, and the regions would be encouraged to boost their own facilities.

The briefing followed a *People's Daily* article which urged hotel construction to focus on eliminating the serious shortage of hotel space in Peking, Shanghai and Xian. Guest houses reserved for senior officials and often left empty should be used where possible.

British travel industry officials agree that the lack of hotels in Peking is a seriously limiting factor. Most visitors to China want to spend at least a few days in the capital. As VIPs and businessmen tend to occupy the hotels in central Peking, tourists are eased further out and have even been parked outside the city at a caravan site. The building of new hotels in Peking has been delayed by problems over financing.

They also believe that the best focus for tourism in China at present is specialist trips. China is not a mass market, but the appeal of its culture, food, archaeology and mountains to particular groups is strong and not yet satisfied. Thomas Cook, for instance, are taking several camping groups to Tibet, while Turnbull Gibson organised the British mountaineer Chris Bonington's current expeditions to Mount Kongur.

Opinions within the industry differ, however, on the degree of expansion that is left in the business. The cost of a trip from Europe is well over £2,000.

Gestetner takes to the tracks in 17-city tour

By Lisa Wood

THE CHINESE puzzle of how a British company reaches isolated markets in 17 cities on a 12,000-mile route in less than four months has been solved by Gestetner, the UK-based international reprographic equipment and supplies group.

Gestetner technicians and lecturers have just embarked on a promotional tour of China conducted from two specially converted railway carriages which will travel the length and breadth of the country.

The tour is something of a coup for Gestetner—it is the first foreign company to arrange such an expedition on the Chinese railway system, which affords some of the best communications in the country.

It has taken Gestetner about three years to negotiate the tour. The project was made somewhat easier by a Chinese Government request to the company to organise a series of lectures on new reprographic techniques, and these will be incorporated in the tour with one of the carriages holding a 60-seat lecture theatre.

Gestetner has had a fairly strong presence in China for some 30 years and it is already a supplier of copiers, stencil duplicators and off-set duplicators to the Chinese Government and provincial users.

Mr David Gestetner, joint chairman, said that although Chinese technicians were trained to service Gestetner equipment, the tour would enable those technicians on the train to oversee servicing operations.

The promotion is costing Gestetner "tens of thousands of pounds" but the company has not asked other British companies if they would like to join the train, and thus share the cost.

Brock warns Europe and Japan of tough U.S. stand

BY PAUL CHEESERIGHT, WORLD TRADE EDITOR

THE European and Japanese Governments face increasing pressure from the U.S. to eliminate both tariff and non-tariff barriers to international trade.

"The basic policy of this Administration will be towards a more liberalised trading system," Mr. Bill Brock, President Reagan's Special Trade Representative, has warned.

Mr. Brock's recent visit to Tokyo and, last week, to Brussels, Geneva, Bonn, Paris and London, has helped to clarify the Administration's general approach, and this will be formally enshrined in a White Paper now receiving its finishing touches in Washington.

But while trade liberalisation is one flank of the Administration's plans to restore inflation-free vigour to the U.S. economy, the priority is domestic health, Mr. Brock told the Trade Policy Research Centre in London. "We cannot be healthy abroad if we're sick at home," he said.

More aggressive trade diplomacy is therefore expected to be accompanied by a polite fending-off of European worries about the high level of U.S. interest rates and their effect on the dollar's performance on the foreign exchanges. These two factors are widely felt to be impeding a revival of world trade.

The U.S. contends that, although Washington must be more politically sensitive, greater good will be served by restoring health to the U.S. economy. Suffering will only be temporary but, as Mr Brock put it. "We have no choice than to stay with the fundamental effort to put our own house in order."

Part of this process is the de-regulation of U.S. business. In terms of the renewed interest in exports, this means legislation to ease the tax burden on U.S. expatriates, a re-definition of what is acceptable practice for U.S. companies in making payments abroad to secure foreign business, and a softening in the anti-trust provisions governing the establishment of trading companies.

The same pattern of thinking underlies the evolution of U.S. trade policy. What is sought is the removal of governmental restrictions and distortions of trade, and the translation of the revived free enterprise ethic to the world market place.

In practical terms, this means that the Reagan Administration takes over from where its predecessor left off in seeking the full implementation of the new codes agreed in the 1970s during the Tokyo Round of multilateral trade negotiations within the General Agreement on Tariffs and Trade (GATT).

Trade has to be conducted in a code of law, noted Mr Brock, a code contained in the GATT. "The effort to strengthen GATT has to come from using it. We are looking for opportunities to take things to GATT," he said, so that a body of case law could be built up.

The U.S. system of trigger prices for steel imports was the sort of issue that could possibly go before the GATT, he said, although this was "not a propitious time."

In the longer term the U.S. would like to see trade in services brought into the GATT. Mr Brock made it clear in London that free trade in services was a priority. He pleaded for other industrialised countries to put in resources so that a framework can be devised for serious talks about it.

"We may have to approach it in a less than generic fashion, but we can't leave it alone", he said. This reflects the fact that 41 per cent of U.S. exports are in services. The UK has broad sympathy with the aim, but remains pragmatic in its approach about how more open service markets can be achieved.

The U.S. stress on strengthening the GATT underlines the basic thrust of its policy—free access to markets. Mr Brock has broached with Japan the question of bringing down tariff levels and undertaken to allow developing countries special access to the U.S. market while expecting them eventually to accede to international codes.

But he reserved his harshest words for export credit subsidies, increasingly widespread in the industrialised world. He accepted that the U.S. Export Import Bank had been weakened in the recent budget, but added: "We do not lack other tools and we will not be reluctant to use those tools".

The U.S. intends to break the system of subsidy. "I hope people understand just how strongly we do not like the present abuse of export credits," Mr Brock said.

Three groups tussle for $75bn aircraft sales

BY MICHAEL DONNE, AEROSPACE CORRESPONDENT

PLANS BY the major aircraft manufacturers for a new generation of 150-seat short-range airliners are likely to provide the dominant theme at the Paris International Air Show, which opens at Le Bourget, on Thursday and runs until June 14.

Following the decision by Fokker of Holland and McDonnell-Douglas of the U.S. to join forces on the MDF-100 project for a 150-seater, both Airbus Industrie of Europe and Boeing of the U.S. are expected to reveal their own plans for such aircraft.

Airbus Industrie is planning the A-320, and Boeing the "7 Dash 7," but neither group has revealed any details of these projects.

The 150-seater is likely to be the next major civil airliner project to be undertaken on both sides of the Atlantic—aimed at a market estimated at over 2,400 aircraft worth over \$75bn through the 1980s and into the 1990s.

Considerable interest will also be focused at the Paris Show on two new prototype helicopters which the Soviet Union will be exhibiting for the first time. These are the Mi-17 and the Mi-26, both from the Mil Helicopter Design Bureau, one of the two helicopter manufacturers in the Soviet Union.

No details of these aircraft are yet available, but one is understood to be a new "heavy lift" helicopter, code-named "Halo" by Nato, and the other a new anti-submarine warfare and reconnaissance aircraft, probably developed from the Mi-24 Hind aircraft.

In all, more than 200 aircraft from over 20 countries will be appearing at the show, which shares with the UK's own Farnborough exhibition the position of the biggest international air show staged anywhere in the world.

The Paris Show, however, is like Farnborough, of greatest significance for what goes on behind the scenes, in the many manufacturers' chalets lining the runway at Le Bourget. With over 250,000 visitors expected, including over 50,000 trade visitors, a great deal of business is likely to be discussed.

Apart from deals for the smaller, cheaper, light aircraft, few contracts are actually signed at the big air shows. Multi-million pound contracts for large quantities of airliners are often months, if not years, in negotiation, but initial meetings are often held at the air shows.

This year, many of the world's airlines will be at the Paris Show to study the ideas the manufacturers will be putting forward for not only new aircraft, such as the 150-seaters, but also for improving existing types in an era of soaring fuel and other costs.

Two U.S. groups set up plants in Ireland

By Our World Trade Staff

THE INDUSTRIAL Development Authority of Ireland, backed by array of capital investment incentives, has attracted two more U.S. manufacturers.

Warner and Swasey, the Ohio machine tool company in the Bendix Corporation group, is to set up a manufacturing unit at Abbeyleix, north of Dublin, and Nike, the sports footwear company, is to take an advance factory at Navan, north-west of Dublin.

Under the name Manchester Tools, Warner and Swasey will make precision tungsten carbide tipped tools, mainly for export to France, West Germany and the UK. Its initial investment I£500,000 (£387,000).

Nike will also be exporting running shoes and, later other types of athletic footwear. It is planning a I£4.5m investment and has made a commitment to give Irish suppliers preference.

Norway rig deal

OSLO — The Hollandese Constructie Group of the Netherlands and Belleli Industri Meccaniche of Italy have been awarded contracts worth \$17.5m for delivery of prefabricated equipment modules for the deck of the Statfjord group's Statfjord C platform, the Norwegian State Oil Company (Statoil) has announced.
AP

Moscow-Tokyo pipeline talks

TOKYO—The Soviet Union will open talks with Japan's semi-official Export and Import Bank in Tokyo on June 9 on a loan to finance imports of Japanese steel pipe, Japanese Bank officials said.

The Soviet Union has agreed in principle to import a total of 750,000 tonnes of large-calibre steel pipe for pipeline use from four major Japanese steel companies for shipment from July to next March.

The officials said the Soviets have been seeking the bank loan for the pipe deal, but refused to elaborate on the size, although industry officials estimated the purchases will be worth about \$400m.

The deal is apart from the Soviet Union's \$15bn Yamburg project to build a gas pipeline from West Siberia to West Europe.

Japan has offered to supply about 3.5m tonnes of steel pipe for the Yamburg project over the next four years and related equipment, including gas pumping stations.

The officials said progress in negotiations between the Soviet Union and Japanese companies over the Yamburg project was slow as Japan was awaiting developments in natural gas sales to the European countries, including West Germany.

The four Japanese companies involved are Nippon Steel, Sumitomo Metal Industries, Nippon Kokan and Kawasaki Steel.
Reuter

SHIPPING REPORT

Carrier rates drift lower

BY OUR SHIPPING CORRESPONDENT

THE recent stronger trend in the very large crude carrier (VLCC) market was reversed last week and rates began to drift lower.

A significant pointer for the market was a 280,000-ton re-let, with no inert gas or crude oil washing equipment, which was fixed at Worldscale 27 for an Arabian Gulf-West voyage. As a result rates for tankers equipped to IMCO standards fell back to Worldscale 30.

Tankers on voyages to eastern destinations are continuing to command premiums of three to five Worldscale points, and the cost of fixing vessels with storage options for up to 180 days is running at up to \$13,000 per day.

In its latest weekly tanker report, E. A. Gibson notes that the majority of the quite considerable amount of business fixed recently has been by Aramco partners out of Saudi Arabia, probably in anticipation of an Opec price rise.

Now that this has not materialised, Gibson questions whether the recent momentum in the market for VLCC's ULCCs can be maintained. It says that consumer demand is still insufficient to deplete Western stocks at the present time, and there seems no immediate prospect of demand increasing in the near future.

In the dry-cargo markets, signs that the U.S. miners' strike may soon be over have given rates a fillip. Rates for Panamax sizes in the Atlantic have risen by about \$1.50 per dwt to \$23.0 per dwt. Denholm Coates reports that there is considerable coal inquiry.

World Economic Indicators

TRADE STATISTICS

		Apr. '81	Mar. '81	Feb. '81	Apr. '80
U.S. \$bn	Exports	19.82	21.43	19.76	18.57
	Imports	23.28	21.88	21.92	19.77
	Balance	−3.46	−0.45	−2.16	−1.20
Japan \$bn	Expor s	12.610	13.727	12.118	9.881
	Imports	11.100	11.616	11.815	10.640
	Balance	+1.510	+2.111	+0.303	−0.759
France FrFrbn	Exports	48.478	45.205	46.039	42.286
	Imports	50.654	48.811	49.702	44.330
	Balance	−2.176	−3.606	−3.663	−2.044
		Mar. '81	Feb. '81	Jan. '81	Mar. '80
W. Germany DMbn	Exports	33.8	30.2	27.3	31.3
	Imports	33.9	29.3	28.2	29.3
	Balance	−0.1	+0.9	−0.9	+2.0
Italy Lirebn	Exports	5,250	5,921	4,909	5,617
	Imports	7,114	7,454	6,400	7,001
	Balance	−1,864	−1,533	−1,491	−1,384

State industry investment restrictions face attack

BY JOHN ELLIOTT, INDUSTRIAL EDITOR

GOVERNMENT restrictions on investment programmes in state-owned industries will come under a three-pronged attack from leaders of the CBI and TUC, and from chairmen of nationalised industries during Wednesday's monthly meeting of the National Economic Development Council.

Sir Geoffrey Howe, Chancellor of the Exchequer, will be told by the CBI and the chairmen that the Treasury should relax its restrictions to allow major investment programmes to go ahead in businesses such as British Telecom, British Rail and British Gas.

The chairmen will argue that this could be done without undermining the Government's basis economic policy if the public sector borrowing requirement's rules were relaxed, realistic investment levels agreed, and the industries were given better access to private-sector finance.

The chairmen state in a paper circulating among council members that the debate conducted by the Government about the ownership of the public sector has been "barren and divisive."

This outspoken statement reflects their anger at their treatment by the Government, many of whose senior ministers have refused fully to accept the chairman's arguments about the value of potentially profitable investment in the public sector.

The chairmen have a study group looking into their financing problems. Tentative findings so far produced confirm their view that the Government could give the go-ahead for selected investment projects without undermining its basic economic policy, especially if the access to private sector funds was improved.

The NEDC meeting will debate the interdependence of the public and private sectors of industry.

Sir Peter Parker, chairman of British Rail and the chairmen's representative on the council, will argue that the prospects of the public and private sectors should be regarded as a single issue.

The Government should abandon its argument that increasing investment in the public sector would take possible investment funds away from the private sector. Instead, it should accept that the two *sectors mutually depend on each* other as suppliers and customers and should have close links.

The CBI backs this approach even though it wants to see expenditure by the public sector reduced. It believes that the savings made should be used both to cut taxation and to increase public sector capital expenditure.

The TUC will take a more basic approach, arguing that the Government should start to reflate the economy by rapidly introducing a wide range of public sector investment projects.

Sarabex loses status as money broker

By Christine Moir

THE Bank of England has withdrawn from Sarabex the status of recognised money broker. The withdrawal marks the end of the Arab-backed money broker's short but controversial establishment in London.

Sarabex made international history in 1977 when it complained to the European Commission that it was prevented *from operating* in London because of the "closed-shop" in the money-broking community.

New brokers, it said, could not operate in London without joining the Foreign Exchange and Currency Deposit Brokers Association.

The complaint led to changes in the regulation of foreign exchange brokers. The Bank of England took over direct control of membership of the community.

Once the Bank introduced the status of recognised broker, Sarabex applied for recognition. This it obtained in 1979 after being required to loosen its ties with its parent company,

However, Sarabex was losing money and in March this year was negotiating to sell its fixed assets in London, mainly its telephone network.

The latest list of recognised foreign exchange brokers is:

● *Foreign exchange and currency deposits*—Astley and Pearce, Guy Butler (International), Charles Fulton and Company, Godsell and Company Harlow Meyer Savage, Kirkland-Whittaker, M. W. Marshall and Company, R. P. Martin and Company, Tradition (London Brokers) (incorporating Frazer May International), Tullett and Riley International, and Woellwarth and Company.

● Currency deposits only—*MeridianDeposit* Brokers and Shortloan International.

MP's analysis casts doubts on job losses link with high rates

BY ROBIN PAULEY

GOVERNMENT claims that high rates are a key cause of private sector job losses are thrown in doubt in an analysis published by a Labour MP today.

Mr Jack Straw, MP for Blackburn and an opposition Treasury spokesman, asked the Commons library's statistical section to analyse rate increase and unemployment levels in the English and Welsh counties. The result shows no systematic relationship between counties with the highest increases in unemployment and those with the largest increase in rates.

Mr Straw's analysis says rates have consistently formed less than 1 per cent of industrial costs and the increase in busines rates over the past two years (44.5 per cent) has been broadly in line with the overall increase in material and fuel costs (38.9 per cent), compared with a jump of 93.6 per cent in industry and commerce's interest payments.

"Within the business sector, it is manufacturing which has relatively the smallest rate burden and commerce, distributive and other services, and public utilities which have the higher. Yet it is these latter sectors where the job losses have been relatively low."

In answer to recent Parliamentary questions, Mr. Tom King, Local Government Minister, said he was not aware of any systematic analysis of the issue.

"I do not believe that systematic analysis is necessary to recognise that high rates can add significantly to business costs, *so reducing* competitiveness and thus adding to unemployment," he said.

Mr. Straw says more work needs to be done on his preliminary analysis and the local authority asssociations should be involved.

● Hammersmith and Fulham borough council in West London has called in financial consultants Arthur Young McClelland Moores to review its spending. The three-week study, which wil cost up to £20,000, will look at the council's priorities and objectives in an effort to find cheaper systems and increased income. It is also hoped to find longer-term savings and improvements in productivity.

Deft report on policing the code of advertising

By Michael Thompson-Noel

THE VIGILANCE with which the watch-dogs of the advertising profession investigate complaints has seldom been underlined so deftly as by this weekend's arrival on news editors' desks of a lime-green document. It is an heroic and detail account of complaints recently pursued by the UK Code of Advertising Practice Committee.

It runs to 24 pages and contains about as much life and joyousness as yesterday's post-mortems on England's demise in the World Cup.

The report covers a total of 205 intra-industry complaints, usually by one advertiser against another. Because they come from within the industry, says the committee, they may well be of a "technical nature." (Complaints from consumers about advertising are handled by the Advertising Standards Authority or the Independent Broadcasting Authority.)

The committee's diligence shines at its best in the case of Paraquatics of Hove versus Atlantis Aquarium of Worthing. The subject matter: parrots. The sections of the code invoked: II.4.1 and II.4.2.

According to the committee a dealer (Paraquatics) challenged a description by an advertiser (Atlantis) in the *Brighton and Hove Evening* Argus. The description was of "African Grey Parrots."

The dealer felt the advertisement implied the birds were the silver or greying African Grey, Psittacus Erithacus Erithacus. According to him they were Psittacus Erithacus Timneh. He also objected to the quoting of a "usual price" for the parrots, which he found confusing.

In its verdict the committee says: "The advertiser supplied information to confirm that the species as a whole was known as African Grey Parrot, although it did have several sub-species. This was confirmed by the experts consulted by the committee. The advertiser confirmed that the 'usual price' referred to his own previous selling price.

"Action: No action was required in respect of the advertisement."

In addition to parrots, product areas covered by the committee in its latest report include pens, prints and porcelain, scaffolding and seeds, cameras and croquet sets, hand-dryers and ferries, diets and deodorants, hypnosis and muck-spreaders.

Building industry training plan

BY ALAN PIKE

UNEMPLOYED school-leavers are *to be* offered a year-long introduction to the construction industry under a scheme on the lines of proposals in the Manpower Services Commission's recent new training initiative.

The young people will receive the standard £23.50 weekly allowance during the year under the Manpower Services Commission's youth opportunities programme. They will take part in a vocational preparation programme based on the Construction Industry Training Board's standard *apprenticeship schemes.*

Under a pilot project discussed by the MSC, the Construction Industry Training Board and the National Federation of Building Trades Employers, 750 young people will begin the craft-based pre-apprenticeship scheme in September.

A similar number may join a second project aimed at potential *semi-skilled* construction workers which is also under consideration.

Trainees will be introduced to a wide range of skills and possible occupations in the construction industry, spending half the year in college and the other half gaining work-experience with an employer. They will also be instructed in areas like job-hunting and interview techniques, communications skills and health and safety at work.

The scheme has many similarities with proposals in the new training initiative for *year-long traineeships* for all young people under 18 who do not continue full-time education. In the coming year, the MSC *wants* to provide 440,000 youth opportunities places, and is dedicated to developing the programme into a system of "good quality preparation for work."

Schemes like the one planned in the construction industry overcome the criticism that some Youth Opportunity Programme activities do not provide sufficiently worthwhile work experience.

After their introductory year, it is hoped that many of the trainees will become regular construction apprentices. Their number depends on the position of the industry.

Little scope for tax cut foreseen

BY PETER RIDDELL, ECONOMICS CORRESPONDENT

THE SCOPE for income tax cuts appears minimal over the next two or three years unless public sector borrowing targets are relaxed, stockbrokers Phillips and Drew, claim this morning.

The firm's latest economic review argues that existing spending plans are incompatible with substantial reductions in income tax.

The scope *for* cuts in these plans is limited by existing commitments on certain programmes, pressure for additional expenditure on capital projects and by the Government's tendency to incorporate optimistic underlying assumptions on relative public sector costs, lending to nationalised industries, inflation and unemployment.

In another review, stockbrokers de Zoete and Bevan say that the economy should recover sharply over the next 12 to 18 months but with economic growth thereafter constrained by a deteriorating balance of payments.

Looking at the *short-term* monetary outlook, brokers L. Messel estimate that sterling M3, the broadly defined money supply, may have increased by about 1 per cent in the month to mid-May, but after adjusting for the delay to tax receipts caused by the Civil Service dispute, there may have been no underlying change.

Brokers Montagu Loebl Stanley believe that persistent problems of monetary control will keep minimum lending rate at 12 per cent during the summer, and may mean higher interest rates before the end of the year.

Food makers' profits 'may rise by 25%'

BY OUR CONSUMER AFFAIRS CORRESPONDENT

FOOD manufacturers are likely to increase their profits by up to a quarter this year, according to a report on the food industry published today.

Cambridge Econometrics, the commercial arm of the Cambridge University Growth Project, says the "potential for profit increases is very large." Apart from profits growth of up to 25 per cent this year, the report predicts growth in profits of 12 per cent next year and 5 per cent in 1983.

It suggests that profits expansion will be helped by productivity increases of 3.2 per cent a year on average through investment in modern plant and machinery. However, it believes this will "probably mean more mergers and takeovers

Food manufacturers may decide voluntarily to limit their profits to avoid any intervention by the Government, the report says. "The results of this policy would be lower investment and lower growth in exports and output. Eventually, it might lead to higher food prices for the consumer, because inefficient plants were not replaced."

Barclays set to offer new deal on mortgages

By Tim Dickson

A FRESH assault on the mortgage market is being planned by Barclays Bank. A new scheme which will be announced in detail within the next few weeks is expected to be linked to a saving scheme aid aimed particularly at young people.

In return for a commitment to save regularly, those participating will be guaranteed a mortgage in the future.

The bank feels that societies are vulnerable when it comes to larger loans — they often charge up to 2.5 percentage points more than the basic mortgage rate for advances of more than £15,000 — and it is here that the Barclays attack is likely to be directed. It is felt that a package combining savings and borrowing facilities is most likely to appeal to the public.

Barclays charges 14 per cent for loans up to £30,000 and 15 per cent above, though the way the interest is calculated means that even now, Barclays loans can be cheaper than those from building societies.

Dover-Ostend jetfoil service inaugurated

BRITISH RAIL'S Belgian partner in the cross-Channel Sealink ferry operation, Regie des Transports Maritime, yesterday inaugurated its £15m jetfoil service between Dover and Ostend.

Two Boeing jetfoil craft, each costing £4.8m and able to carry about 300 passengers, will eventually make a total of six round trips a day. Journey time is 100 minutes.

Earlier similar jetfoil cross-Channel services started up by P&O and the Seajet group failed last year. The collapse of these services, not long after their inauguration, was attributed at the time to poor back-up—the P&O service being limited to a single vessel — and unpopular routes, with the Seajet craft landing at Zeebrugge.

The earlier services were also bothered by discomfort in rough weather, but the new Boeing craft has computer-controlled foils which are better able to cope with changing wave lengths and weather conditions.

A further, and perhaps more important factor in the failure of the other services, was poor onward linkages to other European centres.

The new 50 mph jetfoil service has been specifically designed to provide an integrated service with trains timed for direct connection at either end. Terminals are being constructed at both ports to cater for jetfoil passengers.

As a result, the London-centre to Brussels-centre time on the combined train/jetfoil service will be an average 5½ hours. This, says RTM, will compare favourably with the four to four-and-a-half hour airport to airport time.

Indeed, competitiveness with the airlines is considered very much more important to the jetfoil service than trying to take market share away from the cheaper but slower ferries, where competition over the last year has been intense.

The price of the jetfoil stage of the London to Brussels journey will be only £5 each way on top of the train fare, with a second class return trip between the two centres costing about £50. The comparable air flight is more than £100, excluding travel to and from airports.

Guaranteed loans plan launched

By John Elliott,

THE GOVERNMENT will today launch a guarantee scheme for clearing bank loans of up to £75,000 given to small businessmen who do not have enough security to satisfy normal bank lending criteria.

Up to £50m a year is to be lent by the main clearing banks annually for three years under the scheme which was announced in the Budget as a pilot project.

The Department of Industry will cover the risks on 80 per cent of each loan and the banks will be responsible for providing the cash and covering the remaining 20 per cent.

The Government is making a 3 per cent charge on its 80 per cent liability and hopes the money raised will cover the cost of any failures because the scheme is intended to be self-financing.

Individual clearing banks *will add their own interest* charges, probably about 2 to 3 percentage points above base rate. This will produce a total interest rate of about 17 to 18 per cent which small business lobbyists believe is excessively high.

Award for Economist editor

MR ANDREW KNIGHT, editor of The Economist, has been chosen International Editor of the Year by the American magazine, World Press Review, the widely cirluated monthly magazine composed mostly of material selected from the Press outside the U.S., or written by journalists affiliated with the foreign Press.

Left turn sets the SNP on course for civil disobedience

THE SCOTTISH National Party took a sharp turn to the left at its annual conference in Aberdeen last week and found itself on a course of civil disobedience to further the cause of independence.

The shift, generated by the *socialist-minded* "79 Group," is designed to awaken new support for the Nationalists among Labour voters in Scotland at a time when the National Party appears at a low ebb in public opinion polls.

The policy of civil disobedience has worried party moderates who fear it exposes the SNP to the damaging effect of illegal acts of defiance committed in the name of the Nationalists.

It came at a conference which saw a desperate search for a new impetus running through the proceedings, as if the party urgently needed something bold to restore its fortunes.

Public opinion polls last week showed the SNP with just 15 per cent support among voters in Scotland compared with 42 per cent for Labour, 23 per cent for the Conservatives and 31 per cent for a Liberal-Social Democratic Alliance.

The poll also showed 25 per cent of Scots wanted an independent assembly separate from Britain while 50 per cent wanted an assembly with substantial powers but within Britain.

Independence from Britain was duly reaffirmed as a target by the conference, but it said that it would not campaign actively for any form of devolution. Party organisers admitted that independence was not an active issue in Scotland now.

Their feeling was that a swing to the left would help to reawaken the subject. The left leaning of the party showed itself at the three-day conference at Aberdeen's music hall

MARK MEREDITH reviews the implications of decisions made at last week's Scottish National Party annual conference in Aberdeen.

with the passing of a resolution calling for a nuclear-free, armed and neutral Scotland, a move which would take it out of Nato.

Within the party it is the left which encourages the feeling that democratic institutions imposed by Westminster are not enough to bring about independence. Over coffee between resolutions, party workers complained that the cards were stacked against Scotland and that the Conservative and Labour Parties would pay only lip service to devolution to absorb residual feelings of nationalism.

There were suggestions that Nationalists shoud not pay their TV licences and that they should set up pirate radio stations to propagate Gaelic. But it was clear that there was scope for much more serious business.

The spokesman for the new left is Mr Jim Sillars, a former Labour MP, who is married to Mrs Margo MacDonald, a long-standing party stalwart and former Scottish Nationalist MP. On Saturday he was elected vice-chairman in charge of policy.

He told the conference last week it was "high time the party took a moral stand of courage in Scottish society." Elaborating on this later, he said that Nationalists would need to be ready to go to jail if necessary for their ideals.

The more traditionalist elements are worried by activities of militants such as the "Siol nan Gaildeah," or Seed of the Gaels. This right-wing group, which helped to give Mrs Margaret Thatcher a rough reception on her arrival to the Conservative Party conference in Perth last month, could also see civil disobedience as their mandate for action.

Mr Gordon Wilson, party chairman and one of its two MPs, feels, nonetheless, that the party leadership will be able to filter proposals for civil disobedience, allowing more radical proposals to be shelved. Extremist activity by the Soil nan Gaildeah would give the party a chance publicly to disassociate itself from extremism.

Internal review of engineering body proposed

By Alan Pike

THE INTERESTS of the engineering industry will be served by the Engineering Employers Federation immediately reviewing its internal structure, Mr Anthony Frodsham, director-general, tells member companies in his annual report published today.

Mr Frodsham, who retires as EEF director-general next year, wants his members to consider whether the federation should extend its traditional industrial relations work to a wider representational role.

When the possibility of the EEF extending its functions was first raised earlier this year, it caused consternation among some trade associations which feared they would lose their identity. Mr Frodsham stresses in his report that "it will never be the federation's function to absorb the distinctive work of individual trade associations." But co-operation for the further strengthening of the industry deserved "earnest consideration."

OBITUARY

Baroness Jackson: voice for the poor

BARONESS Jackson of Lodsworth, better-known as Lady Barbara Ward, died yesterday in Sussex after a long illness. She was 67.

She achieved a worldwide reputation for her work and writing on the problems of the world's poor and for her calls for a better balance between the developing and the industrialised world. Last October she appealed for a second Marshall Plan to help the developing nations.

Baroness Jackson put forward her views through her writings for The Economist, in well over a dozen books and in lectures across the world. Her books included The Rich Nations and the Poor Nations (1962), Spaceship Earth (1966) and Only One Earth (1972).

Educated at Somerville College, Oxford, she became an assistant editor of The Economist when she was 25. In World War Two she lectured for the Ministry of Information and became widely-known through broadcasts on the BBC's Brains Trust programme.

Baroness Jackson was widely honoured. Last year she was awarded the Royal Society of Arts's Albert Medal in recognition of her work for international co-operation for economic development, and the Jawaharlal Nehru Award for International Understanding.

During her career she was a visiting scholar and lecturer at several universities in the U.S., and a governor of the BBC, Sadler's Wells and the Old Vic.

A Roman Catholic, she became in 1971 the first woman to address the Vatican Council in Rome. She was created a Dame Commander of the Order of the British Empire in 1974 and a Life Peer in 1976.

INSURANCE

Acquisitions needed to allay shareholders' fears

BY ERIC SHORT

TWO MAJOR insurance groups, Royal Insurance and Guardian Royal Exchange Assurance, have been among the companies seeking cash recently from their shareholders and the market suspects that a third, possibly General Accident, could be among those waiting in the queue to make a rights issue.

The amounts asked for by the two companies are quite big, Royal getting £116m in December and GRE seeking £78.6m from its shareholders. Such moves are reminiscent of the mid-1970s when almost all insurance groups, large and small, sought substantial sums from their shareholders.

But conditions are vastly dif*ference today than in the mid*-1970s. Then strong growth in premium income, combined with a poor level of retained profits and relatively weak asset values, played havoc with the composites' balance sheets and put their solvency margins (net assets as a percentage of premium income) under pressure. The companies were virtually forced to raise fresh capital to rebuild their balance sheets.

Currently, the balance sheets of the composites are strong, despite the underwriting losses being incurred in North America, Australia and Europe. Premium growth is sluggish and equity values are holding up well, though bond values are somewhat weaker. But the UK major composites all have very high solvency margins, well in excess of 50 per cent. In comparison U.S. insurance groups have solvency margins of about 30 per cent. Until last year, the groups had enjoyed a few years of good profits and steady retentions. *So why have Royal and GRE asked for such sub*stantial amounts?

The brief answer by the companies is that they wish to expand their business at a rate higher than average for the company and they need capital to do this. Mr J. E. H. Collins, chairman of GRE, said last week that the opportunities for growth from internal business were limited and growth could come about only from acquisitions. Royal also has ambitions to grow and reiterated a similar message to justify its rights issue.

The money is being raised for positive rather than defensive purposes, with the companies having their tails in the air rather than between their legs as in the mid-1970s.

Even so the companies' action has not been well received by the market. Any rights issue tends to depress the share price, but in the case of Royal and now GRE the prices have been pushed down substantially, dragging the prices of other composites down with them. The Composite sector of the FT-Actuaries is very weak relative to the All-Share index. Shareholders have had to pay in more ways than one over these rights issues.

The market is questioning whether these groups need the extra money in order to go after suitable acquisitions. The capital position is strong enough to finance some acquisitions without endangering solvency. The implication of the companies is that the extra cash gives them a higher degree of flexibility in seeking acquisitions.

This argument is justified only if the composites go out and acquire insurance companies, particularly in the U.S., which is seen as the major growth area for UK composites. But Royal has been sitting on the rights money for a few months now, with no mention of any possible takeover. The money is invested in the U.S. short Treasury bonds on which it pays corporation tax, not the *most profitable* use of shareholders' money.

GRE has a good track record of acquisitions in the U.S. having taken over two mid-Western insurance companies giving satisfactory returns at a time of heavy underwriting losses. The market is prepared to accept that GRE is not going to sit on the money.

Nevertheless, both companies need to come up soon with details of acquisitions in the pipeline to allay the growing discontent of the shareholders, Royal especially. And it is still debatable whether acquiring insurance companies is going to be easy. Royal expects that, as the U.S. cycle continues its downward swing, some insurance groups will be only too willing to be taken over. Against that there is a lot of capacity world-wide seeking just such attractive situations.

The answer is in the shareholders hands to use their voting power. But as usual, the grumblings have not been turned into action and this is encouraging management to consider that it is relatively easy to raise fresh money purely on trust. The stockbrokers have shown extreme disquiet, yet are still recommending clients to accept the offer. Under such circumstances, share prices will not recover quickly.

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Midland Bank man joins Co-op

By Our Banking Correspondent

MR TOM O'MALLEY, a leading figure in the UK finance house industry, has resigned from Forward Trust, Midland Bank's finance house operation, to run FC Finance, the Co-operative Bank's finance house. His appointment as managing-director designate, reflects the Co-operative Bank's ambition to develop FC Finance.

The Co-operative Bank bought a majority stake in FC Finance in 1969. The group made a pre-tax loss of £277,000 last year. Just over a year ago, Mr John Donaldson, the managing director who had run the company since it was incorporated in 1958, was sacked following a boardroom row, and is suing the company.

Last October, the Co-operative Bank appointed one of its own joint general managers, Mr Roger Gorvin, as managing director, and then announced it was buying out the minority holding.

Merrill Lynch plans to enter banking market

BY ALAN FRIEDMAN

MERRILL LYNCH, the Wall Street securities group, is to enter the UK banking market with a "cash management account" designed to attract high income customers.

Mr Bob Linn, assistant vice-president of Merrill Lynch, said yesterday the group was "test marketing" the account in London, pending a full-scale introduction either later this year or early next year.

The account is a current account which pays interest on the basis of money market rates and includes withdrawal facilities through a cheque book or Visa debit card.

Mr Linn said Merrill Lynch had 300,000 accounts in the U.S. and funds on deposit totalling about \$6.5bn (£3.15bn). The average depositor was a "high net worth individual" and the deposits were usually above \$20,000 each.

The UK had been selected because it was the major financial centre in Western Europe and the most profitable starting point for what Mr. Linn hoped would be Europe-wide operations.

"We are looking for people who are interested in securities markets," he said. The account would be "a parking place for money pending investment."

There would be no advertising initially and the emphasis was on offering the programme to existing clients in London. But the account could be altered to meet the needs of UK customers and the interest payments might be based on UK and European money market rates in future.

The programme involves a "pool of investment" in short-term money market certificates of varying terms. The average maturity on these investments is 26 days, Mr Linn said.

Customers' deposits are invested in U.S. Treasury bills, certificates of deposit, bankers' acceptances and commercial paper.

According to the Retail Banker International magazine, Merrill Lynch has received legal advice that it would not infringe any UK banking legislation by offering a cash management account service in London. Its subsidiary, Merrill Lynch International Bank, is a recognised bank under the Bank of England's rules.

Mr. Linn said that although the programme was geared to a wealthy clientele, it would be competitive with the UK clearing banks and building societies.

Mr. Bob Amos, assistant chief general manager at Lloyds Bank, said he thought the new Merrill account could not provide the other facilities of a clearing bank. He described it as a limited service, but admitted that it could have an appeal in the UK.

Bass to end Burton Union brew

By Gareth Griffiths

THE LAST brewery employing the Burton Union system of brewing will close next year. The closure means the end of the system.

Bass plans to close one of its two brewhouses at Burton-upon-Trent in September 1982 and to move the 90 staff to jobs at its operations in the town. Bass spent £2.6m improving capacity at its other brewhouse.

It said the move would not materially affect output and its main significance was the ending of the Burton Union system. This involves removal of yeast from beer in fermentation.

Bass said the 120-year-old system was expensive to maintain, occupied much space and that the same effect could be achieved in the more modern brewery by using skimmers.

At the system's height the then 38 separate breweries in Burton used it. However, it was not widely used outside and has been in decline since the Second World War.

Union group presses for talks on public investment

BY JOHN LLOYD, LABOUR CORRESPONDENT

LEADERS of the "Triple Alliance"—the grouping which brings together the coal, rail and steel unions—are seeking urgent talks with Government ministers whom they suspect of dragging their feet on public investment plans.

They have written to Mr. James Prior, the Employment Secretary, asking for an urgent meeting in the next two weeks with the group of Cabinet ministers with whom they discussed the future of their industries earlier this year.

At talks with the ministerial group—which included Sir Keith Joseph, Industry Secretary, Mr. David Howell, Energy Secretary, and Mr. Norman Fowler, Transport Secretary, and was chaired by Mr. Prior—the union leaders gained the impression that a number of investment plans were being sympathetically considered.

These included new investment in railway electrification and rolling stock, and at least £250m more investment in coal mining.

However, no concrete proposals have been forthcoming. The union leaders—especially Mr Joe Gormley, president of the National Union of Mineworkers, and Mr Sid Weighell, general secretary of the National Union of Railwaymen—have expressed growing alarm.

Mr. Weighell said yesterday: "We have moved hardly at all since we talked, and so we have picked up the undertaking given to us by Jim Prior to write to him when he felt there were delays.

"We feel they are dragging their feet, particularly in the rail and mining industries. I understand that the decision on the rail electrification programme has now been referred to another think tank."

The Government now faces the possibility of industrial action in all three sectors.

● In coal, proposals for a greatly expanded investment programme, and the cancellation of plans to close 23 pits bought off a threatened miners' strike in February. That threat could surface rapidly once more if the mineworkers feel that the proposals were hollow.

● In steel, the main steel union, the Iron and Steel Trades Confederation, has still refused to accept a six months pay freeze for the first half of this year. It may plan at its conference next week for selective strikes.

● In rail, the unions have rejected a 7 per cent pay offer and will meet tomorrow to decide their future action.

However, the immediate threat of unofficial industrial action by train drivers in the southern region, members of the drivers' union Aslef, has lessened.

British Rail said last night that services should be near normal in the south-western division (Waterloo), though there might be industrial action, with some delays and possible concellations, in the central and south-eastern divisions.

Co-op societies suffer in tough High Street battle

David Churchill reports on a movement in decline

THE ANNUAL Co-operative Union congress opens in Edinburgh today with few indications that the co-op movement has any new ideas on how to cope with the tough High Street trading climate, let alone any long-term plans to halt the movement's gradual decline.

A year ago, at the Isle of Man congress, the problems facing the movement looked formidable. The 191 independent retail co-op societies then in existence had too many small shops trading unprofitably, not enough funds to finance new superstore expansion to compete with groups like Asda and Tesco and a fervent desire to retain their independence at all costs.

Such problems in one form or another have become increasingly apparent for most of the past decade. During that time, the co-op's position as the biggest UK retailer, and one of the largest food manufacturing and wholesaling organisations, has slipped steadily as multiple retailers have gained ground in all types of retailing.

Yet the co-op remains the largest retailer in Britain—although few in the retail world would be prepared to gamble on this staying true by the end of the 1980s.

Over the past year, the co-op's problems have become more acute and the cracks in the movement's structure more apparent. Although retail conditions have been tough since the middle of 1979 (when the hefty value added tax increase in the Conservatives' first Budget led to a sales slump), the sharpest downturn of the recession did not materialise until spring last year.

The retail co-ops, which are major retailers of clothes and household goods most badly affected by the recession, suddenly found they had to fight hard just to stay in the game.

The co-ops have had some success in maintaining their sales volume by their aggressive price promotions, a switch to local advertising rather than national, and the fact that when consumers trade down in the market it is usually the co-op they turn to.

Department of Industry statistics show that last year the retail co-ops increased their sales by about 12 per cent over 1979 to a total of £3.6bn. Although this was 1 percentage point better than the average for all retailers (an average lowered by the minute 5 per cent sales growth for small shops), it was still below the 15 per cent sales growth for large retail businesses.

The cost of maintaining sales volume was the final straw for many societies, as trading margins became further eroded and losses mounted. The pressure on societies to merge to form larger trading groups intensified, and a number of merger talks started last summer.

The most important merger came in September, when the largest independent retail co-op, the London Society, was forced to seek a union with Co-operative Retail Services, traditionally the co-op movement's ambulance to take over retail societies in trading difficulties. Before the London merger, it had taken over about 160 societies since the 1930s and had an annual turnover of almost £500m.

Only a few years ago, a CRS takeover of the London Society, with a turnover of more than £230m a year, would have been unthinkable. Four years of trading losses for the London society, and the fact that it was trading in the most competitive retail markets in the UK, meant, however, that a merger with the CRS becames the only way it could rebuild to continue to compete over the next decade.

Last year there were eight mergers between retail societies and there have been a further six so far this year. Several societies are continuing with merger talks, especially the Royal Arsenal and South Suburban societies

The problem remains, however, that most retail societies are fiercely independent. They will usually seek a merger only when it is probably too late to do anything to stem their trading decline.

The retail societies' fear of centralised control is seen as the crux of the movement's trading problems. Centralised control would, it is argued by its supporters, enable the co-op movement better to direct its resources into competing with the centrally-controlled multiple chains, and help provide the capital to build more superstores.

Structure based on customer-members

The structure of the Co-op movement is based on the 10.4m customer-members who own shares in the 170 or so retail societies and who elect the controlling management.

Each society is independent of each other, although collectively they own shares in the Co-operative Wholesale Society. The CWS acts as food manufacturer and distributor for the societies, which do not have to buy exclusively from the CWS.

The Co-operative Union, which organises the annual congress, acts as an umbrella body for the whole Co-op movement. It has no powers to control any one section. While the retail societies are the main members, the Co-op Union embraces all types of producer and consumer Co-ops.

It also sponsors a number of MPs who sit as Co-operative Party members but take the Labour Party whip.

Single rail union likely by 1985

BY JOHN LLOYD, LABOUR CORRESPONDENT

THE long-held objective of a single union for all railway workers seems likely to be achieved in the next three or four years.

The executives of the two manual workers' unions—the 180,000-strong National Union of Railwaymen and the 27,000-strong train drivers' union Aslef—have agreed to form a federation of railway unions. They will recommend it to their conferences this month.

The 70,000-strong Transport and Salaried Staffs' Association has still to decide on its position though it is believed likely it will follow suit.

The federation, which is explicitly seen as a transitional arrangement leading to a unified union before the middle of the decade, should be formed by the end of the year.

The final form of the federation and its constitution was agreed at talks between the NUR, Aslef and the TUC last week. The combined federation would have a membership of nearly 280,000.

The plan is for the three unions to hold a joint annual conference as a federation, complementing their individual conferences, which would continue while they remained separate.

There would also be an annual joint meeting of the three executives, at which each union would have the right of veto over all proposals, and a secretariat to service the federation.

Mr Sid Weighell, NUR general secretary, said last night the veto would stop the dominant NUR from imposing its will on the other two unions.

"We are creating a federal constitution under which if you don't agree with it you can easily opt out of it. But I am very much hoping that we can agree and come closer in this way."

Both the NUR and TSSA are led from the Centre-Right, while Aslef is Left-led. However, Mr Weighell said the need for unity in the industry should ensure that a spirit of consensus and compromise attended their decision-making.

"I believe we can sit down and hammer out a unified policy which will make us a much more powerful lobby on any Government. The differences between us are not as great as they are often made to appear."

Mr Weighell extended the will to merge in his own industry to others. In a speech to a conference of NUR branch secretaries at Ayr yesterday he said the splits in the union movement were weaknening it.

"More than 100 unions battle on separately and as islands instead of forming a continent of effective power. If we don't make an effort soon, our weakness and disorganisation will invite anti-union forces to think they can disarm us and to dictate terms."

Mr Weighell said the TUC and its powers should be organised to ensure that alternative policies agreed with the whole Labour movement were carried out.

'Reflation can raise output and check jobless total'

REFLATIONARY measures could in the short-term improve *economic prospects*, the National Institute of Economic and Social Research argues in the latest issue of its quarterly *review published today*.

Such measures "could raise the level of output and check the rise in unemployment, with relatively little, if any, cost in worsening the figures for prices. We need more effective demand in the system; and if effective demand were increased by, for example, the elimination of the employees' national insurance surcharge, it is unlikely that the consequent increase in real demand would lead to a higher rate of inflation than the one which is in prospect on present policies. Indeed it might well be lower."

The institute returns to its long-standing theme that in the longer term, the problem of *chronic inflation* will remain and "the search for alternative methods—and that means essentially a search for workable reforms of the wage-bargaining sysem—will have to be renewed sooner or later. There is no other way.

"Nor would we claim that *the reflation* of the economy—which is needed in the short term simply to make a very bad prospect slightly less bad—solves the problems of the poor economic performance of British industry.

"However, we do not think that deflation is the answer to this probelm either. The need *here too* is for structural changes—in matters such as educational policy, patterns of assistance to research and development and industrial policy in general."

The institute's proposals are based on its view that "on all present forecasts the confidence pay-off from declining inflation will diminish month by month and year by year as it is apparent that the fall itself is slowing down.

"Meanwhile, with every month and with every year the cost of unemployment are going to rise. The political pressures to do something are bound to increase. Such measures amount to reflation, however disguised.

Conventional general reflation might both work more quickly in the short run and do less damage in the long run than *an asembly of hastily-contrived* schemes to alleviate the most obvious damage from contraction."

The institute is sceptical about the prospects both for recovery and for a significant further fall in the inflation rate. It is also doubtful about the Government's claim that there will be medium-term benefits from "the considerable costs of extended unemployment and lower output."

The review poses the question of how far the reduction in the rate of growth of money wages is a consequence of the fear of unemployment so that once that fear has been removed, the challenges might return again.

Similarly, the institute questions hopes about the creation of a "leaner, fitter" industry. The prolongation of the recession and the fall in fixed investment may jeopardise the productive potential of the future.

Apprenticeships have dropped and "the prolongation of unemployment may lead to a proliferation of official interventions which is the exact opposite of what the Government originally hoped to achieve." The latest quarterly review also contains a special article by Mr David Mayes, its editor, examining the rational *expectations hypothesis*.

He shows how economists, modelling the economy, are obliged to take some view about how expectations are formed and discusses the various methods which have been tried. Mr Mayes points out that the rational expectations hypothesis has in many hands been linked with theories about the economy which are not generally accepted.

National Institute Economic Review, No. 96, May 1981, from National Institute of Economic and Social Research, 2, Dean Trench Street, Smith Square, London SW1P 3HE. Price for annual subscriptions £25 (home) and £35 (abroad).

Disparity in world productivity trends

A MARKED divergence has appeared between output trends in Western Europe and in North America and Japan, the institute highlights in its discussion of the world economy.

The review suggests that while the surprisingly high rate of output achieved in the U.S. in the first quarter may not be maintained in the rest of the year, overall economic growth in the 24 countries of the Organisation for Economic Co-operation and Development is likely to be of the order of 1¼ per cent this year, slightly more than in 1980.

In the U.S., real Gross Domestic Product should rise by about 2 per cent this year *following a decline of 0.2 per* cent last year. But in Western Europe, GDP may rise by only 0.1 per cent after an increase of 1.4 per cent last year.

The disparity should be less marked in 1982. In the OECD area as a whole real GDP is forecast to rise by 2.7 per cent with an *increase of 2.8 per cent* in the U.S. and of 1.7 per cent in Western Europe.

The institute comments that the change of President in France suggests that policies may become more expansionary there, but in most of Western Europe they will probably remain cautious because of concern about inflation and the balance of payments.

"Under present restrictive policies, and with the strong possibility of increasing restriction, it is difficult to see what can produce the strong recovery in European output which is widely expected in 1982.

"There is no obvious source of stimulus and the need remains for adaptation to the rise *in relative energy prices*, the increased participation in trade by the U.S. and Japan, the growth of the newly industrialising *countries*, and the other changes that have occurred (or become more pressing) in the eight years since rates of growth slowed down."

The rise in consumer prices seems likely to be 11 to 12 per cent ths year and over 9 per cent in 1982 in both Western Europe and *North America*.

The respective balance of payments prospects of the two regions differ significantly. The U.S., and perhaps Canada by 1982, should be in surplus on current account, whereas in both years Continental Western Europe faces deficits of the order of $60bn, with West Germany accounting for about one-third.

The current account surplus *of the oil producers is expected* to remain in the region $120bn to $130bn with further improvements in their terms of trade. The deficit of other developing countries may increase from $70bn last year to nearly $100bn by 1982, although the rate of growth of their imports is declining.

Any increase in the volume of world trade this year is likely to be very small, but there should be *a bigger rise in 1982*, perhaps 5 per cent, as demand in the industrialised countries recovers.

The *review* also contains a section looking at the prospects for the newly industrialising countries (Brazil, Mexico, Hong Kong, South Korea, Singapore and Taiwan)

British output will stay flat

TOTAL OUTPUT in the UK is expected to remain broadly flat *over the next 18 months with* unemployment rising to about 3m by the end of 1982, the National Institute warns in its *latest quarterly review*.

Accompanying this sluggish picture of activity, the institute also expects the slowdown in the *rate of consumer price inflation* to taper away with an annual rate of 10½ per cent in the last quarter of this year and 8½ per cent by the *final quarter of* 1982, thus showing no repetition of the sharp falls of the last 12 months.

The *March Budget* is expected to have a largely deflationary impact, lowering real Gross Domestic Product by some ½ per cent in 1982 compared with the outcome expected under unchanged policies.

The assumed easing of *Minimum Lending Rate of* two percentage points and the lower level of public sector borrowing of £9½bn in 1981-82 and of *£8¾bn in* 1982-83, together with high interest rates in the U.S., have contributed to a forecast of a continuation of the April value of the sterling exchange rate for the rest of this year, followed by a rise of 4 per cent in 1982.

Nevertheless the recent fall in sterling means that the *latest* forecast level of the exchange rate (as measured by the trade-weighted index) is 7 per cent *less than* projected in February.

The recent rise in the dollar has helped to raise the price of oil relative to the world price of *manufactured goods*. Despite a forecast of a lower rate of real increase from now on than suggested in February, this, *coupled with a current account* surplus of £5½bn this year and £5½bn in 1982, supports the forecast about sterling.

The forecasts are, *in aggregate*, similar to those produced in February but there are significant changes in the distribu*tion of income* and *expenditure*, reflecting both the Budget and

Reports by Peter Riddell, Economics Correspondent

the fall in sterling.

The main impact is on average living standards, as measured by real personal disposable incomes, which are now expected to be 1¼ per cent lower this year than in 1980 and to remain roughly unchanged in 1982. Consumer spending is expected to be sluggish though this should be offset by a higher level of fixed investment next year than previously assumed.

The review contains a detailed discussion of indicators of recovery and the pattern of *economic cycles. Looking at the* downward revision of past trend growth rates, the institute concludes that the trough of the cycle will not occur until, at best, late in 1982.

Average earnings are now expected to rise by about 9½ per cent through the current wage round to this summer but the institute does not expect to see any particular slackening in the level of settlements during the next 18 months, with the *1982* level some 9 per cent higher than this year.

Further effects of increased unemployment on wage bargaining are likely to be offset by pressure to make up for the decline in real incomes resulting from the non-indexation of direct tax allowances and the rise in indirect taxes.

As a result of the rather limited prospects for further falls in the rate of price inflation and the fall in disposable incomes, consumers' expenditure is also expected to remain stagnant after falling back following the pre-Budget anticipatory spending.

Employment is forecast to decline by 4 per cent this year and by 1 per cent in 1982. These declines are expected to be heavily concentrated in manu*facturing industry* where the falls are 10 per cent in 1981 and 3 per cent in 1982.

Even taking the larger falls in output in 1980 into account, it is clear that employment fell further in 1980 than in 1975 and that there was a correspondingly smaller fall in pro*ductivity*.

Given flat retail sales and little growth in manufacturing output this year, it seems probable that further destocking of £2bn (at constant 1975 prices) is likely, consisting of changes of £300m in work in progress, £500m of finished goods, £700m of *distributors' stocks and* £500m of other industries' stocks.

By 1982 most of the destocking will be completed and only a further £500m reduction is expected, almost entirely in the first half of the year.

The volume of exports is expected to decline by just over 3 per cent this year before rising by 3½ per cent in 1982, in response to a general recovery in world trade. Imports are likely to grow as destocking declines.

The financial forecasts are relatively comforting for the Government. Public-sector borrowing is forecast to be £9½bn in the 1981-82 financial year, roughly £1bn less than expected by the Treasury. This reflects the assumption of higher wage inflation resulting in higher payments of income taxes and slightly higher revenues from the North Sea than the Government expects. This offsets the forecast of higher current spending than officially expected. But the differences are well within the normal forecasting margins.

With personal sector saving still running at a high level, the company sector is expected to *have no difficulty* in increasing its deficit in 1982 to meet the needs of the end of destocking and the increase in fixed investment during the year.

The level of gross trading profits (excluding North Sea oil and gas) is forecast to be at a similar level in 1981 and 1982 but lower by around a quarter than recorded in 1980—a measure of the continuing pressures on the company *sector*."

SUMMARY OF THE FORECAST
(February projections in brackets)

	Real GDP (per cent change year/year, 1975 prices)	Real personal disposable income (per cent change, year/year)	Unemployment (fourth quarter, m)*	Money supply (per cent change in sterling M3, fiscal years)	Consumer prices (per cent change, fourth quarter on fourth quarter)	Current account balance (year, £bn)	Public sector borrowing requirement (fiscal year, £bn)
1980	−2.0	2.1	1.9	19.5	12.8	2.7	14.0
1981	−1.2 (−1.3)	−1.2 (1.0)	2.6 (2.67)	9.0 (10.0)	10.5 (9.6)	5.5 (5.1)	9.5 (12.0)
1982	−0.1 (0.2)	−0.3 (0.7)	3.0 (2.99)	9.0 (10.0)	8.5 (8.2)	5.2 (3.2)	8.8 (11.1)

* Great Britain, wholly unemployed, excluding school-leavers.

PUBLIC SECTOR AND MONEY SUPPLY

Financial years, £m

	Public sector borrowing requirement	*Sales of* public debt to non-bank private sector	Change in currency	External financing of public sector	Bank lending to public sector	Bank lending to private sector	Bank lending overseas	Domestic credit *expansion*	Foreign currency *finance*	Banks' non-deposit liabilities *(net)*	Change in money stock (sterling M3)
1979/80	9,914	9,190	552	220	−48	9,330	494	10,548	2,448	1,439	6,441
1980/81	14,000	11,300	850	950	900	9,000	2,900	14,600	1,950	700	11,000
1981/82	9,500	8,500	950	—	50	7,000	500	8,500	1,500	1,000	6,000
1982/83	8,800	8,000	1,100	—	−300	8,000	500	9,300	1,500	1,000	6,800

Source: Financial Statistics, National Institute estimates.

Recession was underestimated

THE MAIN British forecasting groups underestimated the severity of the recession last year, particularly the extent of the rundown in stock levels, according to a comparison in the latest review.

The article highlights a *number of problems in under*taking comparisons because of the nature of the data, especially discrepancies between various measures of Gross Domestic Product.

For instance, while the London Business School was exactly accurate in its forecast of a 1.6 per cent decline in the expenditure measure of GDP last year, its projection of 1.7 per cent drop in the output measure underestimated the actual fall which was 3 per cent.

The institute says: "It is difficult to draw precise conclusions about the performance of the respective models (as distinct from the performance of the *forecasting teams) from this* analysis since we cannot deduce the relative contribution of the four main types of forecast error, namely, data revision error exogenous variable error, judgemental error and model error."

The review points out: "It is interesting that the Keynesian National Institute did relatively well in forecasting monetary variables such as earnings, prices and the exchange rate whilst the monetarist London Business School did relatively better on most categories of real expenditure.

"Although some Treasury *ministers had little faith in the* accuracy of forecasts using the Treasury's model, the Treasury did exceptionally well in forecasting most categories of expenditure, its chosen measure of Gross Domestic Product, and prices, while, in comparison, the rational expectations' Liverpool model did very much worse in forecasting output (and about as well on prices)."

BUSINESSMAN'S DIARY

UK TRADE FAIRS AND EXHIBITIONS

June 2-4	Institution of Electronics Exhibition (0706 43661)	Ingliston Showground
June 2-5	International Scientific, Educational, Medical and *Industrial Laboratory Equipment Exhibition*—SEMLAB (021-705 6707)	Olympia
June 4-13	Fine Art and Antiques Fair (01-385 1200)	Olympia
June 7-10	Times and Sunday Times Business to Business Exhibition (01-407 4046)	Earls Court
June 15-18	International Water Industry Conference and Exhibition (031-557 2478)	Metropole Hall, Brighton
June 16-18	International Process Measurement and Control Equipment Exhibition (01-727 0083)	Wembley Conf. Centre
June 23-26	International Word Processing Exhibition and Conference (01-405 6233)	Wembley Conf. Centre
June 27-July 1	International Mining Exhibition (01-637 8575)	NEC, Birmingham
June 30-July 2	Electronics Show (Saffron Walden 22612)	University of Leeds
July 1-5	International Cycle Show (01-643 8040)	Harrogate
July 19-23	*21st Harrogate Gift Fair (0382 867153)*	Harrogate
Aug. 23-26	International Craft and Hobby Fair (04252 72711)	Wembley Conf. Centre
Sept. 3-5	Business and Light Aviation Show (01-643 8040)	Cranfield Airfield
Sept. 6-10	Watch, Jewellery and Silver Trades Fair (01-643 8040)	Earls Court

OVERSEAS TRADE FAIRS AND EXHIBITIONS

Current	International Trade Fair for Machinery and Equip*ment for the Wood Industries LIGNA* (01-651 2191) (until June 2)	Hanover
June 5-14	International Aeronautical Exhibition (01-439 3964)	Paris
June 11-15	International Carpet, Wallpapers, Wall Coverings and Furnishing Textiles Exhibition (01-439 3964)	Paris
June 17-20	Western Canada Farm Progress Show (01-930 7491)	Regina, Saskatchewan

BUSINESS AND MANAGEMENT CONFERENCES

June 1-2	Management Centre Europe: Do the old rules still apply? (Brussels 2190390)	Brussels
June 1-2	FT Conference: The role of international com*panies in Saudi Arabia's development plans* (01-621 1355)	Grosvenor House, W1
June 1-2	FT Conference: Energy supplies—feast or famine? (01-621 1355)	Hilton Hotel, W1
June 2-3	Lloyd's of London Press: Marine Insurance '81 Hull Conference (01-353 1000)	London Press Centre, EC4
June 3	FT Conference: Financing World Air Transport Expansion (01-621 1355)	Paris
June 4	Abacus Conferences: Investigations by European and United *States Completion Authorities* (0604 881300)	Cafe Royal, W1
June 4-6	Institute of European Studies: European Monetary *System* and *International Monetary Reform* (02/649.00.30)	Brussels
June 6	Enterprise North: Start Your Own Business Conference (Durham 41919)	Hartlepool
June 8-12	IPM: Methods in Interpersonal Skills Training (029383 344)	Horsham
June 9-11	Varian: Leak detection seminar (Switzerland 04223 44 33)	Massachusetts, U.S.
June 10	ICETT: Symposium for Chinese Research Workers in UK (05827 68219)	Central London Polytechnic
June 10-11	AMD: Communication and Confidence Development for Managers *(07535 56047)*	*Penta Hotel, SW7*
June 10-11	DRI-EML: European Energy Conference (01-222 9437)	London
June 12	Oyez-IBC: Financial Modelling (01-242 2481)	Royal Lancaster Hotel, W2
June 15-17	Quantum Science Corporation: MAPTEK annual strategy conference—The next generation of distributed processing and communications technologies (01-839 5347)	Grosvenor House Hotel, W1
June 15-16	FT Conference: American Foreign Trade and Investment (01-621 1355)	*New York*
June 16	RTD: Disposal of hazardous waste (0428 53911)	Mount Royal Hotel
June 17	LCCI: Working or investing in the United States—the law and practice of securing immigrant and non-immigrant visas (01-248 4444)	Cannon Street, EC4
June 17	IPS: The negotiation and commercial management of plant and engineering contracts (0990 23711)	Kensington Palace Hotel, W8
June 18	Oyez IBC: Anti-Discrimination Law — Recent Developments and Future Trends (01-242 2481)	Hilton Hotel, W1
June 24	*Henley Centre: Framework Forecasts for the EEC* Economies Business Prospects to 1983 (01-353 9961)	Press Centre, EC4
June 29	Oyez IBC: Effective Romalpa Clauses—How to draft Retention of *Title Clauses on the Sale* of Goods so as to Defeat a Receiver or Liquidator (01-242 2481)	Cavendish Hotel, W1
June 30-July 1	School of Business Administration: Budgeting with special emphasis on the problems of maintenance expenditure (0233 22101)	Penta Hotel, SW7
July 2-3	MSS Computer and Business Consultancy: Appreciation of systems analysis and design (Worthing 34755)	Worthing
July 6-10	IPM: The Work of the Personnel Department (01-387 2844)	Embassy Hotel, W2

Anyone wishing to attend any of the above events is advised to telephone the organisers to ensure that there has been no change in the details published.

APPOINTMENTS

Machine Tool Trades Association appoints head

Mr Roy K. Ward has been appointed director general of THE MACHINE TOOL TRADES ASSOCIATION. He succeeds Mr Howard O. Barrett who retires after 34 years with the MTTA. Mr Ward retired from the Army in January 1980 as a lieutenant-colonel at which time *he was an instructor at the Army* Staff College. He joined the British Carpet Manufacturers Association as deputy director in 1980, leaving them to take over as director general, MTTA.

*

Mr J. Campbell McGarvie has been appointed managing director of CONTROL DATASET, Stevenage. He succeeds Mr Terry Cave who is now Control Data's deputy managing director and chief operating officer. Mr McGarvie joins Control Data from General Automation where he was managing director UK and Scandinavia.

*

Mr T. A. J. Boyce, Mr I. C. Carter, Mr J. F. Dymock, Lord Ramsay and Mr J. E. Solitander have been appointed directors of HAMBROS BANK.

*

LRC PRODUCTS has appointed to the Board Ms Janice Morgan and Mr John Stratford as commercial general managers.

*

PLESSEY AEROSPACE, Titchfield, Hampshire, has appointed Mr W. D. (Bill) Gilligan as deputy managing director. For the past four years Mr Gilligan has been marketing director and will combine the company's marketing responsibilities with his new appointment.

THIS WEEK IN PARLIAMENT

TODAY

Commons—Companies (No. 2) Bill, second reading. Motion on Education (Schools Information) Regulations.

Lords—British Railways (Pension Schemes) Bill, second reading. British Transport Docks Bill, second reading.

Select Committee—Home affairs: sub *committee on race relations and immigration*. Subject: the operation and effectiveness of the Commission for Racial Equality. Witnesses: National Association of Community Relations Councils (Room 15, 11 am).

[illegible]

WEEK'S FINANCIAL DIARY

The following is a record of the principal business and financial engagements during the week. The Board meetings are mainly for the purpose of considering dividends and official indications are not always available whether dividends concerned are interims or finals. The sub-divisions shown below are based mainly on last year's timetable.

TODAY

COMPANY MEETINGS—

Corinthian Hldgs., Clifton Ford Hotel, Welbeck Street, W. 11.15

Cosalt, Fish Dock Road, Grimsby, 12.00

Dunlop, Café Royal, 68, Regent Street, W. 12.00

Laird Group, Brown's Hotel Dover Street, W. 12.00

Savoy Hotel, Savoy Hotel, Strand, WC. 12.00

Spear and Jackson Intnl., Winchester House, 100, Old Broad Street, EC. 11.00

BOARD MEETINGS—

Finals:

Lesney Products

Sangers

Transparent Paper

Wettern Brothers

Interims:

Heavitree Brewery

Martin The Newsagent

DIVIDEND & INTEREST PAYMENTS—

AMAX Inc. 60cts

Adams and Gibbon 7½pcPf. 2.62pc

Agricultural Mortgage Corp. 4½pcDb.

[illegible]

Pentland Inv. Tst. 4½pcPf. 1.575pc. 5pcPf. 1.75pc

Peters Stores 1.5p

Provident Life Association of London Reg. 6.2p. Br. 6.2p

Radio Rentals 6pcPf. 2.1pc

Ready Mixed Concrete 5.3p

Reed Intnl. 4½pcPf. 1.575pc. 5½pcPf. 1.925pc

Reed Publishing 4pcPf. 1.4pc. 8pcPf.

[illegible]

Unilever NV Sub. Shs. DFl 4.176

Wilkinson Warburton 4.35p

WEDNESDAY, JUNE 3

COMPANY MEETINGS—

Aquascutum, 100, Regent Street, W 12.00

Barton and Sons, Penns Hall Hotel, Walmley, Sutton Coldfield, 12.30

Blue Circle Inds., Inn on the Park, Hamilton Place, Park Lane, W. 12.00

Boosey and Hawkes, Café Royal, 68,

[illegible]

Castings

Century Oils

Culter Guard Bridge

Whittingham

Interims:

Hickson and Welch

Northern Foods

DIVIDEND & INTEREST PAYMENTS—

AGA Aktiebolag Ser. B SKr 7.75

Aquascutum and Associated Ord. and A Ord. 1.3p. 7½pcPf. 1.75pc

Brammer (H.) 3.7p

Finlay Packaging 1.1p

Halstead (James) 0.8p

Lilley (F. J. C.) 3.2p

Lloyds Eurofinance Gtd. Fltg. Rate Notes 1992 US$436.04

London and Continental Advertising (USM) 0.1p. Ord. (8p) 0.1p

Low and Bonar 9.5p

Nedlfbra Finance BV Gtd. Fltg. Rate Notes 1988 US$444.03

Richards (Leicester) 2.8p

Tilbury Contracting 16.37886p

FRIDAY, JUNE 5

COMPANY MEETINGS—

[illegible]

TECHNOLOGY

EDITED BY ARTHUR BENNETT AND ALAN CANE

Automation for semiconductors

BY LOUISE KEYHOE IN CALIFORNIA

ELECTRONICS, especially microprocessors and high density memory devices, are increasingly being used to automate industrial production worldwide.

Now, it is the turn of the semiconductor industry. The trend in semiconductor production technology—as seen at Semicon West, an annual showcase for the equipment manufacturers held in San Mateo, California—is towards increased automation of the individual production processes and of the entire fabrication cycle.

Using microcomputers to automate production lines that make integrated circuits sounds a bit like the chicken and the egg. Which comes first? In today's semiconductor industry that is a good question.

Often, the rapidly changing needs of the chip manufacturers run ahead of the availability of suitable production line equipment. On the other hand, new developments in process control and test instrumentation determine, to a great extent, what the chip makers can achieve.

The microprocessor, however, seems to be providing its own salvation as more and more equipment makers press it into service to control the chemical and electrical processes that go into making ICs.

For the semiconductor industry the "factory of the future" means a wafer fabrication facility that is computer controlled. General Electric of the U.S. is putting together such a facility for the development and fabrication of custom integrated circuits.

"The use of automation in semiconductor manufacturing is increasing rapidly," according to Douglas Scott of IP Sharp Associates which developed the computer control system for the new GE factory.

The "process management and information system" (PROMIS) allows process recipes to be maintained on a central computer and to be automatically displayed in the right work centre at the right time. Test results can be gathered and analysed immediately. The system also performs lot routing and scheduling functions and provides inventory and production control information.

For the integrated circuit maker, automation means more than just added speed and efficiency, though these are important. Automation becomes essential as the standard geometries of integrated circuits become smaller and smaller.

In the latest very large scale integrated circuits (VLSICs) the size of circuit patterns on the chips has shrunk to a micron or less. At this point, the contamination which is introduced when an operator, even one clad in surgical type gown and gloves, picks up a wafer is enough to disrupt the entire operation of the circuits. Even for less critical circuits, handling of the silicon wafers is undesirable.

"Greater automation speeds up processing and saves handling which causes breakages," says Warren Davidson, a vice-president of GCA Corporation, one of the top ten semiconductor equipment manufacturers.

Last week GCA introduced several new refinements for its direct step on wafer (DSW) IC production system at Semicon West (a trade show in California).

Imprinted

The DSW system, which is widely used in the U.S. and Japan, is a lithographic system in which the patterns for individual ICs are imprinted one at a time in several hundred steps across a silicon wafer. At Semicon, GCA showed a system with a new automatic aligner, which, says William C. Schneider, product manager, permits wafers to be aligned over a wide range of process conditions.

Lam Research, a specialist company in Santa Clara, California, uses computer control to the utmost for its new plasma etching system. This is a system which carves away the miniscule areas between the transistor junctions of the integrated circuit. With its AutoEtch 480 plasma system, Lam provides a computer and preprogrammed recipies to control the process.

David K. Lam, president of the company, explains: "We were able to merge the latest plasma etch technologies with state of the art microcomputing techniques to create a more reliable, serviceable and easy to use plasma etcher.

"All the critical variables, such as flow rates, pressure, power and temperature are controlled by the computer eliminating all the manual controls commonly found on plasma etchers."

The system, says Lam, ensures consistency in processing and higher yields in production environments.

Towards the end of the production cycle of integrated circuits comes the important task of testing—sorting out the wheat from the chaff. Obtaining the equipment that can put the most advanced integrated circuits through their paces has always been a problem for the semiconductor maker.

Manufacturers of testing equipment traditionally have lagged a generation behind semiconductor makers in developing systems to qualify the increasingly complex silicon devices. Today, with the emergence of VLSI, the problem has become even more acute.

The complexity of the new VLSI chips creates a widening gap between the functional power and speed of the semiconductor devices and the capabilities available to test them. These fast and complex devices simply cannot be tested at anywhere near the speed and precision at which they are designed to perform. This creates uncertainty about the quality of the product.

The solution that chip makers have found for the most part, is to build their own test systems, or to adapt existing systems and modify them to meet the more demanding requirements of today's devices.

This is vitally important because the five to ten layers of circuit patterns that go into every IC must be perfectly lined up on top of one another.

Another new development is an automatic particle detector that can find foreign particles only 0.5 microns in diameter in the system's optics. GCA plans further improvements to its DSW machine, which will double the throughput of the system, the company claims.

Increasing throughput is a major goal of semiconductor makers anxious to get fast payback from their very expensive production equipment. The GCA wafer stepper, for example, sells for about $600,000 with the new refinements costing an additional $150,000.

Several equipment manufacturers offer systems that automate another step in the IC production cycle called ion implantation. This is a process by which tiny areas of the silicon are doped to form electrically conductive regions.

The latest such equipment was introduced at Semicon West by Eaton, another big name in the business. The new system, called the Nova NV 2000, is considerably more automated than its predecessors and provides for computer assisted setting up of the process and complete process monitoring and reporting.

The system also performs diagnosis of its own malfunctions, should they occur. Like the GCA wafer stepper, the Eaton system offers the advantages of minimised operator intervention, which reduces contamination and improves throughput.

While throughput can have a major impact upon the economics of IC production, it is of little value unless the yield of "good" correctly functioning devices is high. As the complexity of ICs has increased, so the yield that manufacturers expect to get has gone down.

Obtaining a high yield depends largely upon the precise control of the chemical and electrical processes performed on the wafer. The point has now been reached where human control of the processes is often not good enough. Human controllers are simply not as consistent as their computer counterparts.

Interface

The test equipment makers now, however, claim to have caught up with VLSI. Two test systems recently introduced by Gen Rad—the GR16 and GR18—are designed specifically to test the fast MOS memory devices and advanced microprocessors that are becoming the day-to-day turnout of semiconductor factories.

LTX Corporation of Westwood, Massachusetts, claims a first for its new automatic test system which can handle circuits that have both digital and analog functions.

Examples are the codecs that interface voice signals with digital communications in the telephone network and microprocessors with analog input output circuits capable of handling signals from the real world of serial signals.

Fairchild (Schlumberger), the market leader in automatic test equipment, is emphasising the importance of computer software in adapting to the changing needs of the semiconductor industry. "This may well be the year of cross-over to software dominance particularly as related to computer-aided systems of the future." said Lanny Ross, general manager of Fairchild's test systems division. "During the next five years you will see an increasing trend toward fully automatic test program generation."

Two pints, please and use the portable terminal

BY GEOFFREY CHARLISH

IT MAY not be too long before milk, bread, soft drinks and other delivery roundsmen are seen pressing buttons on a futuristic-looking portable terminal rather than scribbling away in their books.

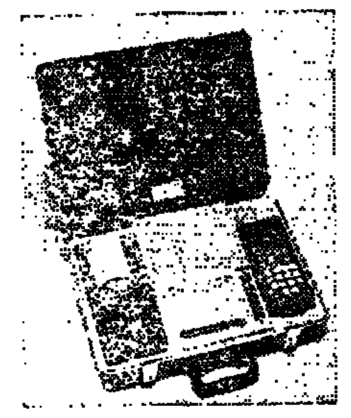
It will all be part of the general trend towards "distributed computing" in which electronic "brain-power" and communications techniques are placed more and more in the hands of those who either originate or make use of data.

It is only in the past decade that such portable devices have become practical due to the development of powerful digital electronics at an acceptable price and physical size. Only ten years or so ago anything worthwhile would have been the size of a couple of filing cabinets.

Such devices are also becoming more necessary because, with the development of all-embracing computer networks within companies, economic advantage can be gained from exchange of data between central computers and employees most of whom are away from their offices, workshops or depots.

Acknowledged leader in the field of hand-held terminals—they look rather like oversized pocket calculators—is MSI, a U.S.-based company which now claims to have sold more than 150,000 units world-wide.

Its latest offering is called Route Manager. Housed in a small brief case, Route Manager allows the roundsman or salesman to record, on the spot, sales and order information for central computer processing, to access



A portable terminal for the roundsman

customer and product information stored in the device's own memory and to print out delivery notes, invoices and sales reports. The equipment can also be fitted in the driving cab.

Roger Vanstone, UK general manager for MSI believes that such a system "can save retail distributors hundreds of hours a month compared with pencil and order-book methods and will provide unprecedented accuracy and control."

Communication can be in both directions. Before the start of the business day, complete product and customer information for each delivery route is transmitted to the terminal either by direct connection or via a modem and telephone line to the computer. It is held in the terminal's own 32k memory.

If all the terminals are in one place then they can be fed with this data simultaneously using a special multiplexer.

Route Manager will also inform the salesman of the journey details on the terminal's display. If required, the customer's name, address, accounting status and other specific sales data can be provided.

Where retail outlets are being supplied the driver can carry in the terminal into the store and record the details of each item ordered as well as "returns" and any spoilage or breakage.

The terminal itself is programmed to guide the salesman through each step of the procedure, asking in plain English for the data it requires. When the order is complete the terminal will then print out a complete invoice for the buyer.

Back at the warehouse the terminal will reconcile the day's activities, producing a settlement report for product, out of pocket expenses and returned stock, as well as other reports normally filled out by hand.

MSI maintains that apart from cutting the salesman's accounting time (allowing him to spend more time selling), the system will also reduce expensive delivery invoicing errors. In addition, faster trend forecasting becomes possible so that suppliers should be able to respond to shifts in sales patterns more quickly.

Either the user company or the system house it employs can program the equipment — the software can be changed as the business changes. Thus, it is relatively easy to change such things as the prompts that step the driver/salesman through the data gathering process or the format for the invoices and reports that the printer produces.

MSI already has two firm orders for the system in the UK, one in a shop supply environment and the other for undisclosed airport work. More on 0628 33121.

Fast ceramic coatings process

CERAMIC COATINGS such as alumina, zirconia, chromia, zirconium silicate and magnesium aluminate can be deposited on to a variety of substrates by a new fast process developed by Norton based on the company's original "Rokide" system.

Value of such coatings is that they can protect the substrate from high temperatures and abrasion while maintaining thermal and electrical insulation.

The latest application gun from Norton works at up to five times the rate of previous designs and uses rods of sintered material for application rather than powder.

This means that it is much easier to change from one kind of applied material to another and no cleaning of hoppers and powder tubes is necessary.

In the new process the fully molten particles of ceramic are atomised and projected at 550 ft/sec at a properly roughened surface forming an adherent, flexible but hard coating of laminar form. More from Norton International at Weybridge on 0932 52755.

POINTERS

Computer discounts

A BULK discount plan has been launched by X-Data, the computer equipment wholesaler, which offers discounts based on the total volume of equipment purchased—irrespective of the product mix. Customarily, discounts apply only to purchases of the same kind.

The plan covers the company's entire range of visual display units, printers and disc stores and works in two ways. First, where a customer can specify quantity requirement per annum, the total number of printers, VDUs etc are added together and the unit price of each item is based on the multi-product total.

The second method is "per consignment" and is intended for customers routinely buying on an "as and when" basis but unable accurately to forecast annual requirements.

In a typical example quoted by the company of a systems builder needing 30 VDUs, 10 discs and 15 printers annually, the saving would be over £3,000 when compared with a single-product discount price of £36,550.

Bumpalarm

OFFERED BY Lyka Cranes of Preston (0772 727927) is a device called Bumpalarm which will tell a lorry driver how far the rear of the vehicle is from any obstruction when reversing.

Signals from a sensor mounted on the back of the lorry are fed to a unit in the cab with a distance display calibrated in feet or metres. It is claimed the unit is effective at up to 30 ft and accurate "down to the last inch."

In addition to the display, Bumpalarm can be made to trigger audible alarms or other warnings when pre-set distances are reached.

The digital display box is available either for permanent installation in the cab or in portable form for hand-held operation.

BUILDING AND CIVIL ENGINEERING

Tarmac to work on M6 section

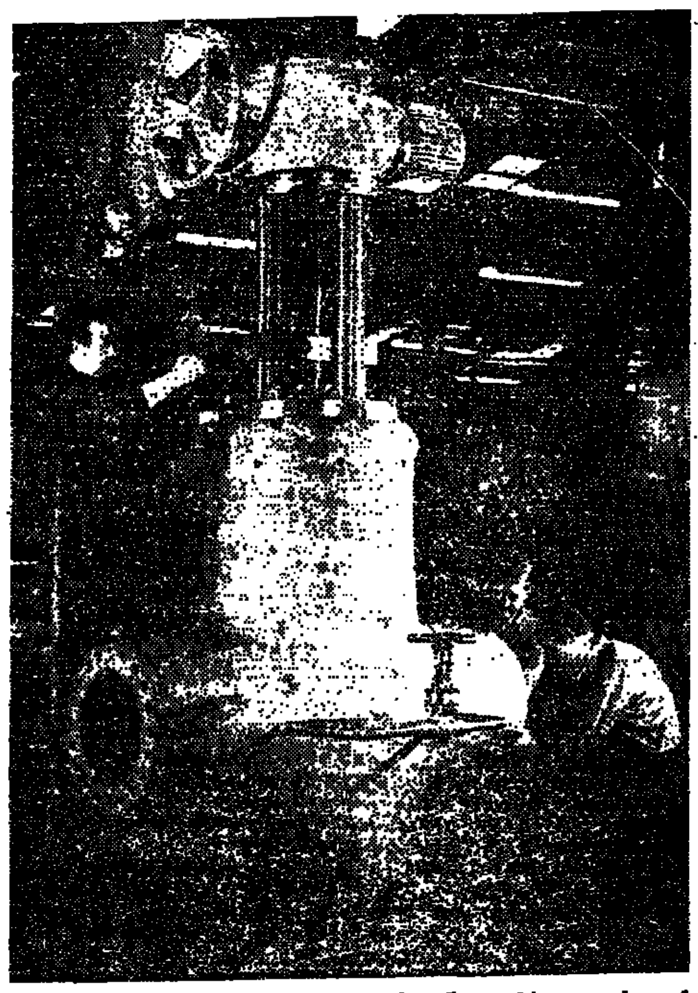
ABOUT £8m-worth of contracts have been awarded to Tarmac Regional Construction.

The largest is a £1.9m job for strengthening work on the M6 between Bescot and Bentley in the West Midlands.

Two council house modernisation contracts in the West Midlands, together worth about £1.6m, have also been awarded to the company—145 homes in Low Hill, for Wolverhampton Borough Council, and 80 homes in Beauty Bank for Dudley Borough Council.

Other contracts include the design and construction of a council depot for Eastleigh Borough Council, Hampshire (£1.5m), extensions and adaptations to Howden Clough School for Kirklees Metropolitan Council, West Yorkshire (£1m), road and bridge works in Atherstone for Warwickshire County Council (£536,000), factory units at Redruth, Cornwall (£460,000) and Newcastle upon Tyne (£226,000), and extensions to the Co-operative Society store at Pyle, Mid-Glamorgan (£275,000).

Contracts awarded to Cubitts—a member of Tarmac Regional Construction — include the external painting and repairs to 202 homes for Knowsley Borough Council, Merseyside (£368,000).



ENGINEERS at the Skelmersdale, Lancashire works of Dewrance and Company prepare a class 2500 24-in parallel slide gate valve for initial performance tests. The valve is one of a range ordered by the Northern Indiana Public Service for the Rollin M. Schahfer power station. It is being built to the utility's 100 per cent radiography specification within a construction schedule of just six months from date of order.

Essential M-Way work

THE Department of Transport has accepted a tender (over £1m) from Tarmac Roadstone Holdings for major reconstruction work on the westbound carriageway of the M62 between Whitley Bridge, North Yorkshire, and Pollington, Humberside.

The work is essential, says the DoT, because the structure of the road, which carries a high proportion of heavy goods vehicles, has been damaged, resulting in cracking and deterioration of the surface.

The hard shoulders are to be upgraded to the same strength as the main carriageway in line with current practice.

£5.4m Holloway prison extension for Holst

NORWEST HOLST has been awarded a £5.4m contract by the Home Office Prison Department for an extension to Holloway Prison in London. This is the biggest of the latest awards to the company and work is now starting with completion in May 1984.

Also in London, Norwest Holst has been awarded a £488,041 contract by St. Martins Property Investments for the fitting out and alterations to the recently completed Kings Mall shop, office and residential development in King Street, Hammersmith.

Aberdare deal

At Aberdare, South Wales, the company has been awarded a £250,000 contract by the Cynon Valley Borough Council for the replacement of a stone-lined culvert with a 2,400mm diameter pre-stressed concrete pipe surrounded with granular fill.

Plymouth project

THREE contracts, worth more than £3m, have been won by Carkeek and Sons of Plymouth.

The biggest, worth about £1.7m, is for the erection of 80 dwellings for the City of Plymouth at Deer Park, Eggbuckland.

Work has also started at Royden Road, Launceston, Cornwall, on a sheltered housing complex costing £750,000 for the Spiral Housing Society.

The other contract, valued at £600,000, is for the South West Regional Health Authority, and involves the building of nurses' residential accommodation at Treliske Hospital, Truro, Cornwall.

Hallam tots up £4.5m

CONTRACTS worth over £4.4m have been awarded to the Hallam Group of Nottingham.

More than £2m of the contracts, which call for the Hallam Derwent system of construction, include a two-storey office block for NEI Clarke Chapman Power Engineering (£420,000) and a dormitory block for the UK Atomic Energy Authority at Holmbrook, Cumbria (£320,000).

Additions to a contract with the Mersey Regional Health Authority for a new main block at *Southport Infirmary* bring the total contract value there to £400,000, while Property Services Agency has awarded Hallam contracts worth £320,000 for a Job Centre at Livingstone and a laboratory plus office accommodation at Bracknell.

Lincpac, a relocatable instant accommodation system, has been specified by the Warwickshire Area Health Authority for the George Eliot Centre in Nuneaton (£50,000) by the Clwyd Health Authority as residential accommodation at Wrexham General Hospital (£44,000) and by Sir Alfred McAlpine to provide accommodation for resident engineers at Windscale (£107,000).

Hallam says substantial contracts for Volumetric Housing have been won from Leech Homes (Midlands) and Leech Homes (Scotland).

Code of practice

THE British Standards Institution has published a new code of practice which gives detailed guidance on the essential requirements of sites selected for the construction of civil engineering and building works.

Entitled BS 5930 Site Investigations it covers the assessment of site characteristics, their effects on project design and construction and the security of neighbouring land and property. The code supersedes the existing CP 2001 published in 1957.

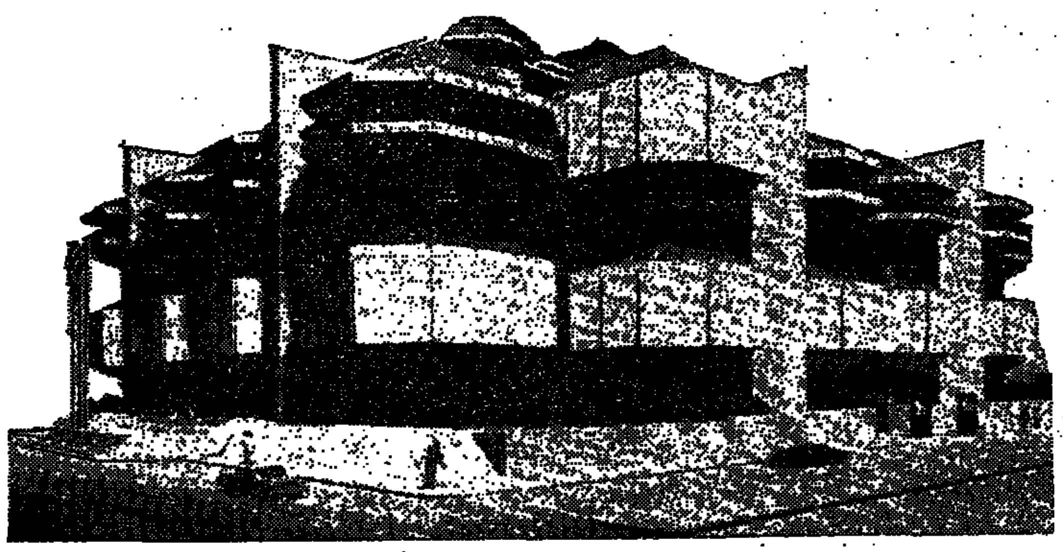
Copies may be obtained from the BSI Sales Department, 101, Pentonville Road, London N1 9ND. Price £25 (BSI subscribing members £12.50).

Hospital of 300 beds for Taylor in Nigeria

TAYLOR WOODROW of Nigeria has been awarded a £13m contract for the construction of the new 300-bed Minna General Hospital by the Niger State Ministry of Health.

The project will involve the erection of four two-storey ward blocks; a surgical procedures, diagnostic, radiology and physical medicine unit; an out-patient, pathology, intensive care and reception unit; and a restaurant, support services, and mortuary unit, together with all mechanical and electrical services and external works.

The work will be supervised by consulting engineer Pell Frischmann and Partners (Nigeria). Quantity surveyors are Widnell and Trollope and the planning and architectural work has been undertaken by YRM International in London.



Port of Spain justice contract

A CONTRACT worth £20m for the construction of the new Hall of Justice in Port of Spain, Trinidad has been won by Higgs and Hill. Work has already begun on this artist's impression of the finished building.

The project is being carried out for the National Insurance Property Development Company (NIPDEC) on behalf of the Government of Trinidad.

The 250,000 sq ft building will comprise a basement and four storeys with mezzanines at first floor level. It will contain 28 courtrooms, a convocation hall seating 500 people, the attorney general's office, judges' chambers, a library and administrative offices.

The building will have an earthquake - resistant reinforced concrete frame. Services to be installed will include air-conditioning, ventilation, a communications and security system, and 13 lifts.

Road work for Beechwood

CIVIL engineering contracts to the value of £1m have been awarded to Beechwood Construction (Holdings).

The largest is for road construction work (£750,000) for Powys County Council. Two schemes are involved, one at Carno on the A470 and the other at Llanbister. Both schemes have been financed by the Welsh Office.

Another contract covering the installation of new water mains has been awarded by the Bristol Avon division of Wessex Water Authority. This two-year contract is worth about £1m.

Peter Birse notches up £11.5m

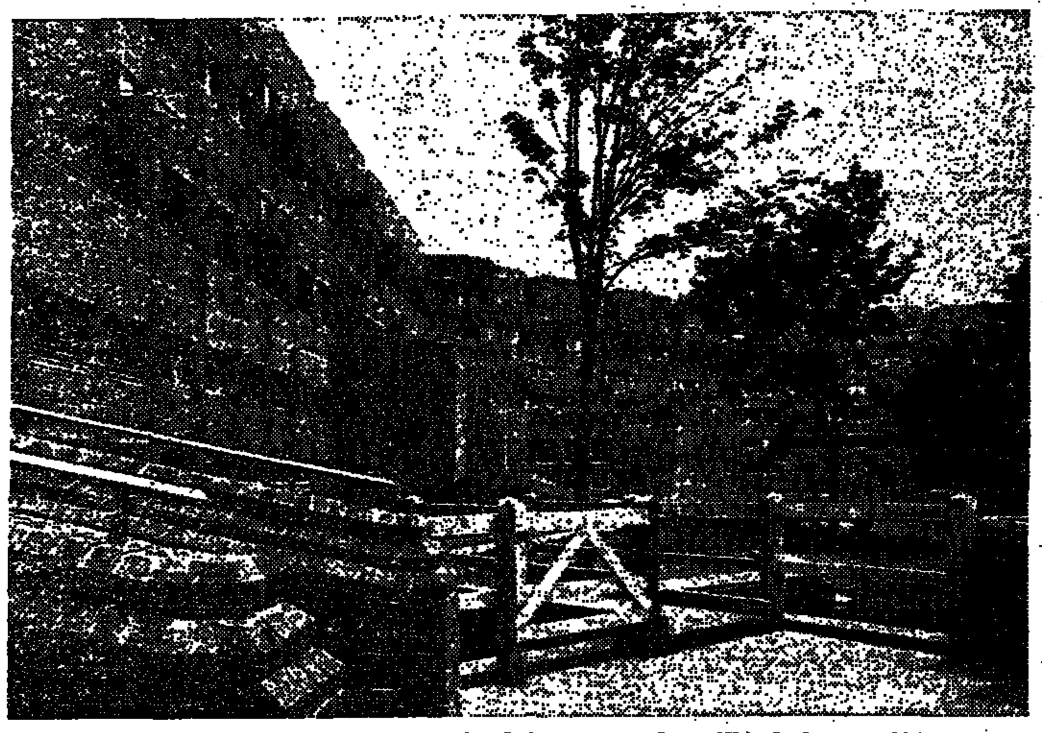
MORE THAN £11.5m worth of contracts have been notched up by Peter Birse.

Civil engineering works include the £3.6m Nutwell water treatment scheme for the Yorkshire Water Authority, South Eastern Division, a £3.1m advance earthworks contract on the A63 for the Department of Transport and a contract for the British Waterways Board for canal work totalling £1.3m.

Other awards include a £300,000 contract to construct foundations for a process plant at a Humberside Refinery and a £200,000 contract for a break-water at Amble for the Alnwick District Council.

Management fee contracts for industrial building construction have also been awarded to the company by Humberside Properties for projects in Leeds, Liverpool, Sheffield, Manchester and Pontefract, valued at £1m, £600,000, £400,000, £800,000 and £450,000 respectively.

● William Press and Son has been awarded a contract worth about £222,000 by the Darlington Arts Centre Trust for alterations and additions to its Arts Centre.



THE QUEEN opened Robinson College, Cambridge on Friday. The design resulted from an architectural competition in 1975, won by Gillespie, Kidd and Coia. Executive architects were Yorke, Rosenberg Mardall. Ove Arup and Partners, Scotland, were appointed civil and structural engineers. The college includes a dining hall, cafeteria, chapel, library music room and auditorium. Most of the residential and study accommodation is on the upper floors.

IN BRIEF

Town centre

CONSTRUCTION OF a £9m town centre project in Dewsbury, Yorks, has been started by Simms Sons and Cooke (Northern) a member of the UK Building Division of the Trafalgar House Group.

To be known as Asman Square and situated in the centre of Dewsbury on an island site, the development (for Trafalgar House Developments) will provide 95,000 sq ft of retail shopping area comprising 25 shop units and four large stores.

Designed to blend with the character of the town, the main structure will be in reinforced concrete construction with stone faced cladding interspersed with panels of rustic red-brown facing brick. Natural blue-grey roofing slates will cover both the pitched roofs and the canopies to the pedestrian malls.

The architect is Leach Rhodes and Walker.

● A project to build accommodation for more than 100 elderly people is being carried out in Adams Road, Beckenham, Kent, for the London Borough of Bromley by Y. J. Lovell (London).

● Leech Homes (Midlands) is to carry out a £2m private residential development at Milton Keynes. More than 80 homes intended for first-time buyers are to be built.

● Walter Lawrence and Son has been awarded a contract valued at over £2.5m to build a five-storey psychiatric unit at St Mary's Hospital, Paddington, London, for the North West Thames Regional Health Authority.

COMPANY NOTICES

PORTO ALEGRE (CITY OF) STATE OF RIO GRANDE DO SUL

5% (NOW 1⅜%) GOLD BONDS PLAN "A"

On the 21st May 1981 the Plan "A" Bonds listed below were drawn for redemption in the presence of a Notary Public. The Drawn Bonds should be presented to the Paying Agent named below, from whom listing forms can be obtained, for redemption at par on the 20th June 1981 with coupon No. 145 attached. Bonds will be received on any business day and must be left three clear days for examination.

BONDS OF £100 NOMINAL

331	1776	3239	5054
366	1778	4171	5056
367	1780	4176	5057
1005	1954	4255	5061
1007	2408	4368	5281
1060	2542	4501	5436
1061	3082	4587	5475
1210	3136	4736	5821
1680	3215	5052	

BARCLAYS BANK LIMITED
Securities Services Department
54 Lombard Street, London EC3P 3AH

OESTERREICHISCHE ALPINE MONTANGESELLSCHAFT

LOAN OF 1965/1985 5¾%
ELEVENTH DRAWING OF MAY 13. 1981

It is brought to the attention of holders of the above mentioned bonds that the amortisation quota of US$919.000 maturing June 15, 1981 has been effected partially through repurchases in the market and partially through drawing by lot.

From this drawing, it has resulted that the bonds remaining outstanding of US$1.000 comprised between the numbers 2990 to 3020 inclusive and the bonds remaining outstanding of US$250 comprised between the numbers 2216 to 3027 inclusive will be redeemable at par as of June 15, 1981 with the following institutions:

Banque Internationale à Luxembourg S.A., Luxembourg
Banque Bruxelles Lambert S.A., Bruxelles
Kredietbank S.A., Bruxelles
Société Générale de Banque, Bruxelles
Amsterdam-Rotterdam Bank N.V., Amsterdam
Algemene Bank Nederland N.V., Amsterdam
Pierson, Heldring & Pierson, Amsterdam
Crédit Commercial de France, Paris
Hill Samuel & Co., Ltd., Londres
Kleinwort, Benson Ltd., Londres
Samuel Montagu & Co. Ltd., Londres
Kredietbank S.A. Luxembourgeoise, Luxembourg
Creditanstalt-Bankverein, Vienne
Oesterreichische Länderbank A.G., Vienne
Bank of America NT & SA, San Francisco
Morgan Guaranty Trust Company of New York, New York.

Coupons maturing June 15, 1981 are payable with these same institutions.

It is reminded that the following bonds, drawn at previous drawings have not yet been presented for payment:

Maturity	US$250	US$1.000
15.06.1975	10112	—
15.06.1978	—	2406
15.06.1980	6262/64	5332/33
	6274/75	5360/63
	6278	
	6282/92	
	6300	
	6349/53	
	6421	
	6503/11	
	6558/59	
	6564/68	
	6581/82	

Amount remaining outstanding after June 15, 1981:
US$4.236,000 represented by 3177 bonds of US$1.000: 4236 bonds of US$250.

BANQUE INTERNATIONALE A LUXEMBOURG
Société Anonyme
Trustee

Luxembourg.
June 1. 1981.

THE THARSIS COMPANY LIMITED

NOTICE IS HEREBY GIVEN that the ANNUAL GENERAL MEETING of THE THARSIS COMPANY LIMITED will be held in the Hotel Lancaster, 7 Rue De Berri, 75 Paris, 8 Eme on TUESDAY, 23rd JUNE 1981 at 12 noon for the following purposes:

1. To consider and adopt the Report of the Directors and the Accounts for *the year ended 31st December 1980* with the Report of the Auditors thereon *and declare a dividend* (Resolution No. 1).
2. To re-elect Directors (Resolution Nos. 2-5).
3. To reappoint the Auditors and to authorise the Directors to determine the remuneration of the Auditors (Resolution No. 6).
4. To fix the remuneration of Directors (Resolution No. 7).

By Order of the Board
R. N. PETERS, Secretary

Registered Office:
136 West George Street,
Glasgow, G2 2HF.
29th May, 1981.

NOTES

1. Any Member of the Company entitled to attend and vote at the Annual General Meeting convened by the foregoing Notice is entitled to appoint one or more proxies to attend and, on a poll, vote on his behalf. A proxy need not be a Member of the Company. To be effective, forms of proxy must be deposited at the Bank of Scotland, Registrar Department, 26a York Place, *Edinburgh not less than 48 hours* before the time appointed for the meeting.
2. Holders of Share Warrants to Bearer who wish to be present at the Meeting or vote by proxy may obtain instructions from the Registered Office of the Company or from the following appointed depositaries:—
   Lazard Freres et Cie, 5 rue Pillet-Will, Paris.
   Banque Vernes et Commerciale de Paris, S.A., 11, rue de Tilsitt, Paris 17.
   Banque de Paris et des Pays-Bas, 3 rue d'Antin, Paris.
   Credit Suisse, Lausanne, Switzerland.
   Lloyds Bank (Belgium) S.A., 2-4 rue Royale, Brussels.
   Banque Generale du Luxembourg, S.A., 14 rue Aldringer, Luxembourg.
3. There are no contracts of service between the Directors and the Company at the date of this notice.

BANK HANDLOWY W. WARSZAWIE S.A.

U.S.$30 millions Bond Loan
1978/1988 Floating Rate

The rate of interest applicable for the six months period beginning on May 29, 1981, and set by the Reference Agent is 19 1/16% annually.

TRAFALGAR FUND

société anonyme
Registered Office:
LUXEMBOURG, 14 rue Aldringen
Registre de Commerce:
Section B No. 6.202

NOTICE OF ANNUAL GENERAL MEETING OF SHAREHOLDERS

The Annual General Meeting of Shareholders of TRAFALGAR FUND, S.A., will be held at its registered office, 14 rue Aldringen, Luxembourg, on June 9th, 1981, at 1500 hours, for the purpose of considering and voting upon the following matters:

1. To hear and accept the reports of:
   a. the directors,
   b. the statutory auditor.
2. To approve the balance sheet and the profit and loss account as at February 28th, 1981.
3. Allocation of net profit.
4. To discharge the directors and the auditor with respect to their performance of duties during the year ended February 28th, 1981.
5. To elect the directors to serve until the next annual general meeting of shareholders.
6. To elect the auditor to serve until the next annual general meeting of shareholders.
7. Any other business.

In order to take part at the statutory meeting of June 9th, 1981, the owners of bearer shares will have to deposit their shares five business days before the meeting at the registered office of the Fund, 14, rue Aldringen, Luxembourg, or with one of the following banks:

—Banque Générale du Luxembourg, S.A., 14, rue Aldringen, Luxembourg.
—J. Henry Schroder Wagg & Co. Limited, 120, Cheapside, London EC2V 6DS.

The Board of Directors.

DIAMONDS FOR INVESTMENT

Diamond Selection Ltd. offer loose-cut and polished diamonds for investment. The following is a cross section of prices from their price guide as at 1st June, 1981.

Based on $ rate 2.06

DSL Grade	Price in $ per Carat
120/4/156	11796
120/10/146	10146
160/10/136	9563
200/25/126	8155
275/25/116	7427
350/60/106	6359
425/60/96	5825
500/150/86	3495
750/399/76	2476
1000/399/66	2136
1500/999/56	1505
2500/999/45	825

Diamonds in the range we recommend for investment have appreciated by approximately 500% since July, 1969.

DSL grade is made up as follows:— Colour/Clarity/Carat e.g 120 4 156

Make is always good/very good.

All stones are graded at Diamond Grading Laboratories using their unique measuring equipment. We also hold regular seminars and teach-ins.

Price guide and brochure with procedure for buying and selling graded and certified *diamonds are available* from:—

DIAMOND SELECTION LIMITED
Petersham House, 57a Hatton Garden, London EC1N 8JD. Tel: 01-405 8045.

NOTICE TO BONDHOLDERS OF THE ISSUE 8.75% 1975-82 OF US$50.000.000 MADE BY THE EUROPEAN COAL AND STEEL COMMUNITY

The Commission of the European Communities announces that the annual instalment of bonds amounting to US2.000.000 has been purchased for redemption on July 1, 1981.

Principal amount unamortised after July 1, 1981: US$38.000,000.

Not yet presented drawn bonds:
Reimbursement 1.7.78:
Nos. 8781 to 8783

CLUBS

LEGAL NOTICES

IN THE MATTER OF BIRMINGHAM BINDING COMPANY LIMITED AND IN THE MATTER OF THE COMPANIES ACT 1948

NOTICE IS HEREBY GIVEN that the creditors of the above-named Company, which is being voluntarily wound up, *are required, on or before the 31st day* of July, 1981, to send in their full Christian and surnames, their addresses and descriptions, full particulars of their debts or claims, and the names and addresses of their Solicitors (if any), to the undersigned

BRIAN MILLS,
of 1 Wardrobe Place,
Carter Lane,
London, EC4V 5AJ

the Liquidator of the said Company, and, if so required by notice in writing from the said Liquidator, are personally or by their Solicitors, to come in and prove their debts or claims at such time and place as shall be specified in such notice, or in default thereof they will be excluded from the benefit of any distribution made before such debts are proved.

Dated this 22nd day of May, 1981.

BRIAN MILLS, Liquidator.

PUBLIC NOTICES

THE SCOTTISH AGRICULTURAL SECURITIES CORPORATION LIMITED

6% Debenture Stock, 1978-81

Notice is hereby given that the REGISTERS of the CORPORATION'S above mentioned Debenture Stock will be CLOSED for TRANSFER and REGISTRATION from 17th to 30th June 1981 both days inclusive.

By order of the Board.
H. J. McTURK,
Secretary.

48 Palmerston Place,
Edinburgh EH12 5BR.
1st June 1981.

NOTICE

To the holders of the Floating Rate U.S. Dollar Certificates of Deposit due 24th November 1981 of:

THE SUMITOMO BANK, LIMITED
Ground Floor, DBS Building
6 Shenton Way, Singapore 0106

We hereby certify that the rate of interest payable on the above-mentioned Certificates of Deposit for the Interest Period beginning on 29th May, 1981, and ending on 24th November, 1981, is 18⅛ per cent per annum.

DBS-DAIWA SECURITIES INTERNATIONAL LIMITED

NOTICE
To holders of

DAI NIPPON PRINTING CO., LTD.

(Dai Nippon Insatsu Kabushiki Kaisha)
6¾% Convertible Debentures
Due May 31, 1986

Notice is hereby given, pursuant to the requirements of Section 3.04(J) of the Indenture, dated as of February 1, 1971, that effective as of June 1, 1981 the conversion price at which said Debentures may be converted into shares of Common Stock of this Company was reduced to Japanese yen 171.70. Prior to such reduction, such conversion price was Japanese yen 180.30 from December 1, 1977 through May 31, 1981.

DAI NIPPON PRINTING CO., LTD.
By: Citibank, N.A.

May 29, 1981

BY ORDER OF THE UNITED STATES BANKRUPTCY COURT NORTHERN DISTRICT OF CALIFORNIA, CASE NO. 3-81-00111

In re: ITEL CORPORATION,
a Delaware corporation, Debtor.

NOTICE OF CLAIMS BAR DATE
(Last Date to File Claims),
AND OF CLAIMS PROCEDURE

TO: CREDITORS AND EQUITY SECURITY HOLDERS OF ITEL CORPORATION AND TO ANY PERSON OR GOVERNMENTAL UNIT THAT ASSERTS A CLAIM AGAINST THE DEBTOR, ITEL CORPORATION:

PLEASE TAKE NOTICE: The United States Bankruptcy Court for the Northern District of California (Honorable Lloyd King, presiding) has entered its Order requiring all entities that assert claims against Itel Corporation or any of the entities listed on the list of "Other Names" published in this publication on February 3, 1981, and that wish to vote on a plan or to share in this estate to file proofs of claim on or before *4:30 p.m., P.D.T., JULY 31, 1981;* or be FOREVER BARRED from sharing in this estate or being treated as a creditor for purposes of voting or distribution.

This claim filing requirement applies to all prepetition claims (claims that arose before January 19, 1981). However, claims for principal or interest under the debtor's public or guaranteed (Eurobond) debentures have been exempted from the claim filing requirement, and need not file proofs of claim now, *as long as the only claim asserted is for principal and interest* under the debenture. Holders of the debtor's preferred or common stock need not file proofs of interest with respect to their stock now. However, if any stockholder asserts a claim against or equity interest in the debtor other than one evidenced by and based only on the shares of stock, a proof of such claim or interest must be filed as described in this Notice.

All claims must be filed in duplicate, and may be filed by mail with the Clerk, United States Bankruptcy Court, Room 17409, 450 Golden Gate Avenue, San Francisco, California 94102 or by delivery to the Clerk at that address. A full copy of the Court's Order may be obtained from the Clerk of the Court, or by writing to: Bar Order, Itel Corporation Litigation Support Division, Two Embarcadero Center, Suite 1600, San Francisco, California 94111, United States of America.

WALTER T. MONIZ, Clerk
United States Bankruptcy Court

THE MANAGEMENT PAGE

EDITED BY CHRISTOPHER LORENZ

Learning to live in harmony

Arnold Kransdorff reports on progress at GEC-Hitachi's television plant in Wales

AT HIS desk in a Welsh valley north of Cardiff, Bob Shove's thoughts, normally not far from things television, recently turned to food.

It would, he thought, be a hospitable gesture to the overseas members of his new management team to introduce a once-weekly dish of foreign inspiration to the company's canteen menu. But could the chef produce Seushi rice with ginger that would pass muster to a Japanese palate, and would his Welsh workforce not find it indigestible?

These questions have yet to be answered as Shove still has to implement the idea, but the food issue is just one illustration of how life is changing for 2,000 workers on the Hirwaun Industrial Estate at Aberdare.

Shove is the new managing director (designate) of a unique Anglo-Japanese business partnership.

While there are a number of joint Anglo-Japanese ventures in the UK, Shove runs the only British company where the ownership is split 50:50. Other joint enterprises have either a minority or majority holding by the Japanese partner.

In Shove's case, one half of the company is owned by the General Electric Company, the giant electrical engineering combine run by Lord Weinstock, and the other by Hitachi, one of Japan's largest audio equipment and television manufacturers.

In the television industry the only other Japanese joint venture with a UK company has been between Toshiba and the Rank Organisation, a partnership that foundered earlier this year after mounting losses. Toshiba has since decided to relaunch the operation on its own.

Elsewhere, Sony, National Panasonic and Mitsubishi all have 100 per cent-owned ventures in the UK. Mitsubishi alone did not start its factory from scratch.

With Shove's company, named GEC-Hitachi Television, the link-up came just over two years ago when GEC's colour television operation was starting to feel the sharp edge of a competitive blast from other manufacturers. For its part, Hitachi had been looking for a UK base for its EEC markets.

The contractual arrangement between the two companies is relatively complex but broadly GEC put assets into the new company, while Hitachi contributed cash and technology. This suited GEC because the product would be of advanced design and would be made with a Japanese dedication to reliability, whereas previously GEC's televisions had been plagued by quality problems.

In the event, the company is now producing a colour television with a Hitachi-designed chassis which the Japanese members of Shove's management team say compares favourably with their home-produced product. In terms of quality and cost of manufacture, they are hopeful that the Welsh factory may eventually surpass Japanese standards.

"A combination of the best of British and the best of Japanese would be better than the best of Japanese," says Sugura Okuma, deputy managing director.

To get there—and GEC-Hitachi admits that there is still a long way to go—it will be necessary to undergo an almost complete metamorphosis at management level and on the production line. By the very nature of the partnership, this means that the factory is going to have to find a workable compromise between the dissimilar British and Japanese ways of making money. A fundamental difference, for example, is the British preoccupation with immediate profit as opposed to the Japanese concentration on building for the longer term.

Formula

By Shove's own admission, "to run an Anglo-Japanese joint venture is really a handful" but he believes that GEC-Hitachi is well on the way to producing a profitable formula that accommodates the best of both systems.

From a manager's point of view his task is nothing less than formidable, if only because of the challenge involved in trying to match Japanese performance with a British workforce.

Shove's Japanese managers estimate that British workers in the television industry generally are 15-20 per cent less productive than their Japanese counterparts. Additionally, the British television industry has historically concentrated on building up its facilities for servicing TV sets rather than improving product quality.

On the more immediate level, Shove occupies a position of power with a double mandate. In effect he has two bosses with identical stakes in his decisions, so he has to walk a somewhat unenviable management tightrope.

There are also the language and cultural problems between the two groups. Both sides have difficulty in understanding each other although communication is getting better as English proficiency improves among the Japanese contingent.

Because of a former posting with Acrow in Japan, Shove is probably the only "native" who speaks a smattering of Japanese, supported by a Teach Yourself Japanese book in his office.

Hailing from Hampshire, Shove reckons he has his own cultural problems—"The only reason the Welsh workforce accepts me here is that I'm a rugby referee," he says jokingly.

Overshadowing all this is the company's choice of a financing policy which, however much is done in terms of running a tight and more efficient ship, has not yet made much of an impact on the bottom line of the profit and loss account.

While the company's fixed assets have been financed by equity, net current assets are funded by debt—a technique favoured by Hitachi but which GEC on its own would not normally use at a time when interest rates are so high. As a result interest charges on borrowings—currently standing at around £11m—have taken all the gloss off achievements to date.

In the two years since the link-up the company has turned in post-interest losses of around £2m, in spite of making operating profits in the last 12 months. In the current year Shove is hopeful of making both an operating and pre-tax profit, although this depends very much on the current level of orders being sustained.

In the year to March 1982 Shove hopes to have produced 250,000 sets (almost double the rate of two years ago) for a UK market share of around 12 per cent. The sets will be sold under both GEC and Hitachi labels.

Notwithstanding the financing constraints, Shove is pressing ahead with internal changes. One of his first major decisions has been to recommend a management restructuring to reflect more fully the contribution from the five Japanese representatives from Hitachi.

Until recently, four of them had been acting in an advisory capacity through Okuma. Now they have assumed the status of director, manager or functional specialist. Tetsuhira Morita is director of purchasing and production planning. Nobuyuki Kimura is treasurer and cost manager. Tomoo Kinoshita is the chief quality engineer and Takayuki Akabane is technical manager responsible for production design.

"The Japanese nature is not to offer advice unless asked for," explains Shove. "They regard unsolicited advice as discourteous. As a result a lot of good advice was being lost because it was not being solicited. I recognised that the only way to get them really involved was to get them into the management function."

Quality

Not surprisingly, the new appointment puts a heavy emphasis on quality control—a function that has changed the original GEC production line out of all recognition.

Of the company's 2,000 workforce, no less than 25 per cent are now engaged in quality control, compared with around 5 per cent before the link-up. This has been introduced to combat what Shove describes as "the poor quality of many British components." The costs of the additional labour in this area are more than offset by savings elsewhere, he says. These include a much lower rejection rate of assembled components and lower warranty costs; the latter used to cost more than 5 per cent of invoiced sales, whereas now they amount to less than 1 per cent.

"Six months ago the rejection rate of certain plastic items such as cabinet fronts and grilles was 50 per cent," he says. "After putting pressure on suppliers this is now down to 10 per cent.

"Similarly, in the past, the rejection rate for some electronic components such as switches and transistors was 5-7 per cent. Now it is below one per cent but the Japanese talk in parts per million."

Apart from closer inspection of incoming components, GEC-Hitachi has also improved its scrutiny of completed sets.

Other production line changes now include new machinery for automatic insertion of components and a new automatic flow line to solder printed circuit boards.

GEC-Hitachi is now also making more components to lessen its dependence on outside sources. All cabinets are now being built on site, whereas before a large percentage were bought in.

Excluding the tubes, which come from a number of sources, the Japanese content of GEC-Hitachi sets is now around 30 per cent (by value).

Okuma, a Hitachi employee for 21 years, is generally optimistic that the Anglo-Japanese company can make substantial improvements. Already, he says, cabinet assembly has reached Japanese speeds, as has the output from the automatic insertion machines.

Quoting figures of two years ago that highlight the lack of quality and reliability of British-made colour televisions, including those of GEC, he says: "Over a specific period between 30 per cent and 50 per cent of British-made television sets needed to be serviced. This compared with a Hitachi figure of 2 per cent.

"We believe that the British worker could become more efficient than the Japanese are now. But it will take a few years on the workers' side and perhaps longer on the management side."

But what are the industrial differences between the UK and Japan? Says Okuma: "The British emphasis is on good service rather than good quality. Japanese managers and workers have the same status. Also, the Japanese manager comes into the factory earlier than the workers and leaves later. In Japan, workers are always the manager's friend; in the UK they are sometimes but often they are not."

And what are some of the factors that Okuma believes make British workers less productive than Japanese workers?

"On the management side there is a lack of production planning, leading to frequent shortages of materials. On the production line much time is lost between clocking in and starting work. Also, working speeds are generally slower."

One of the contributory factors to this latter point is the historical acceptance by British management of eating and smoking on the production line—an attitude that Shove hopes, eventually to change. "You can't work with both hands if you're eating or smoking. However, we're going slowly on this point. We don't want to push it too hard," says Shove, no doubt with the recent experience of one of GEC's subsidiaries clearly in mind. When Hotpoint, the domestic appliance subsidiary, slapped a smoking ban on its workers last year, there were repercussions that disrupted production for two weeks.

More security

But while this caution may reflect an element of management uncertainty towards the sticky problem of industrial relations, GEC-Hitachi's workers have generally reacted well to the new regime.

"We welcome the Japanese input in the circumstances," says Adrian Cheap, a production technician representing EETPO, the electronic and electrical trades union which represents three-quarters of the company's manual workers. "It was necessary because of the way the economy has gone."

He admits that the merger "has given us more security in our jobs. We're proud that we're making a good product now. Working conditions have improved although there is room for greater improvement. But the present management is intent on making this factory a place where people want to work."

"We've got a lot to learn from the Japanese but they've also got a lot to learn from us. The basic difference between us is that in Japan they live to work while we work for a living."

And he adds "the company obviously wants to produce a product of the same quality as in Japan."

Shove agrees. All he has to do is fill in the gap between theory and fact.

Trevor Humphries

GEC-Hitachi's Anglo-Japanese management team: (l to r) Nobuyuki Kimura, treasurer and cost manager; Robert Shove, managing director; Takayuki Akabane, technical manager, product design; Tomoo Kinoshita, chief quality engineer; and Suguru Okuma, deputy managing director

Bursaries for women at Henley

THREE SCHOLARSHIPS for women managers are to be offered by the Henley Administrative Staff College to be taken up later this year.

The college is concerned that not enough organisations take advantage of the potential that exists among the women they employ. It recognises that women's career patterns are more liable to interruption than their male colleagues, and therefore is particularly keen that the scholarships will be awarded to highly qualified women whose careers have been interrupted for family reasons. They may not even be in a job at the moment.

John Liveing, the college registrar, says he would be disappointed "if large companies only put forward women employees who would, as a matter of course, have been put through Henley as a normal part of their career development."

The bursaries, which are worth £5,500 each, covering accommodation and tuition, will be available for the nine-week residential general management course from October 12 to December 17. Interviews will be held in July, and application should be made to: John Liveing, The Administrative Staff College, Greenlands, Henley-on-Thames, Oxon.

LOMBARD

A notable 25th birthday

BY SAMUEL BRITTAN

THE British Institute of Economic Affairs "has consistently advocated the greatest possible reliance on market forces and the least possible government intervention in the economy. Its stance has, therefore, for most of its existence been opposed to prevailing Civil Service attitudes in individual departments.

"But the conventional wisdom or consensus of the 1950s and 1960s has become increasingly questioned in the 1970s and 1980s. The fact that the IEA from its inception was questioning that wisdom has undoubtedly given new thrust and impetus to its views today. Its message still secures more response at the political level than from civil servants, but its publications are now studied far more carefully in Whitehall than they used to be."

Influence

This remarkable tribute to the influence of the IEA (with a characteristically shrewd warning about the remaining obstacles) comes from no less an authority than Lord Croham (better known as Douglas Allen) the distinguished former head of both the Treasury and the Civil Service, writing in The Emerging Consensus . . . ? a book of essays celebrating the IEA's first 25 years.

It is characteristic of the IEA that the essayists include critics as well as friends and neutrals.

The success of the IEA reflects the prevailing disenchantment with government as planner, provider, judge and miracle worker. But it needs vision and flair to take advantage of a change of climate and to play some part in producing it. The IEA's successes, its particular direction, its strengths and its weaknesses reflect two individuals, Lord (Ralph) Harris the general director and Arthur Seldon the editorial director.

Nor has the IEA been quite as laissez-faire as Lord Croham's remarks suggest. Does it believe in market mechanisms as automatic regulators or as aids to more intelligent government? Fortunately both approaches have been represented; and indeed it is possible to take different attitudes to different markets (eg: free markets for consumer products but road pricing in transport policy).

A more important ambiguity is in the distribution of wealth and capital. It is not always clear whether IEA authors quarrel with egalitarian objectives or merely with the means by which they are customarily advanced. On a practical level, Prof. Denis O'Brien points out that for a negative income tax (on which the IEA is keen) to be effective it might have to be financed by very high rates of marginal tax.

Agenda

These points (drawn from the IEA volume itself) are made mainly to emphasise the large agenda for the next 25 years. The biggest gap in the thinking of market economists is undoubtedly industrial policy. Everyone knew that the present British Government would have to compromise between its "stand on your own feet" instincts and the political and social pressure to subsidise the army of lame ducks. But there was no literature or body of thinking on the best kind of compromise to make, with a view to establishing market criteria in the longer run and giving aid in the form where it would do most good—or least harm. The deficiency here was not that of the IEA but of British academics who have not shown the same flair for these "micro" problems as they have for "macro" questions, such as money, budgets, inflation or cyclical fluctuations.

But in the last resort it is on the ethical-political borderlines that most work remains to be done. As David Hume, who is quoted on this point in the preamble, remarked, human affairs are governed in the last analysis by opinion. The successful working of markets crucially depends on whether, for instance, buying in the cheapest market and selling in the dearest is regarded as sinful or virtuous; and if the view is "virtuous, but" or "virtuous except when . . ." the qualification needs to be made explicit. Behind market economics there is as underlying ethical approach often different from "common sense," but none the worse for that. Until the underlying ethic is explained, defined and stated persuasively, the market approach will remain on the defensive.

IEA, 2, Lord North Street, London, SW1P 3LB. £3.60.

Tax avoidance verdict turned on special facts

THE WEEK IN THE COURTS

BY JUSTINIAN

WHEN THE House of Lords handed down its decision two months ago in *W. T. Ramsay Ltd v Commissioners of Inland Revenue** the tide seemed to have turned irreversibly against deliberate tax-avoidance.

A fortnight ago, however, the unanimous House of Lords' decision in *Commissioners of Inland Revenue v. Garvin*, in favour of the tax-avoider, came as a surprise to practitioners, since the robust decision of Lord Justice Templeman in the Court of Appeal (whose judicial crusade in a series of recent cases against tax-avoidance had ultimately prevailed in the earlier triumph for the Revenue) looked ominous to tax avoiders.

A closer scrutiny of the Garvin decision, however, should dispel any surprise, since the case turned very largely on special facts and, more significantly, on findings of fact made by the special commissioners which conclusively determined the outcome of the litigation.

The scheme in question in Garvin was of a vintage popularly known in tax circles as "early Bradman." It differed from the ordinary "off-the-peg" scheme in one material respect. In off-the-peg schemes the taxpayer is simply invited to write his own, artificial income-tax deduction or allowable capital loss. By contrast, the tax-avoiders in Garvin were concerned with getting *real* profits (free of income-tax) out of companies which they owned. The relevant statutory provisions were sections 460-468 of the Taxes Act, 1970, which (in the main) re-enact anti-dividend-stripping provisions of the Finance Act, 1960.

In brief (and in round figures) the avoiders owned five companies which had between them £559,000 in actual and potential profits available for distribution by way of dividends. The kindly Mr. Bradman was willing to help them avoid the 91¼ per cent rate of tax payable if and when such dividends had been declared: all this for a commisssion of over £80,000.

The salient features of Mr Bradman's scheme were:

1—Sale of the shares in the five companies to a Bradman company called, with a nice Arthurian touch, Excalibur; the price was £472,000;

2—Lease of the properties owned by the five companies to a second Bradman company for premiums amounting to £983,000;

3—Sale of all the reversions to a third Bradman company called, more mundanely, County;

4—Sale of the resulting freeholds to yet another company, Central, this time owned by the tax avoiders, for £989,000, they having lent Central £472,000, which sum they could in due course extract, free of tax, from Central.

About a year later Excalibur (ie, Mr Bradman) caused the five companies to declare and pay to it dividends amounting to £555,000; these payments were exempt from tax by reason of Section 256 of the Taxes Act.

The Revenue duly served the requisite notice under Section 460 on the tax-avoider, claiming to counter-act this tax advantage by treating the £472,000 as if it were income. The Revenue had to show three things in order to succeed in clawing back the tax advantage. First, that there was a transaction in securities: this was achieved by the avoiders' sale of the five companies' shares to Excalibur. Second, that they got tax advantages as a result: the courts clearly thought that they had. And third, that the circumstances set out in two subsections of section 461 of the Taxes Act existed.

The circumstances in section 461 (d) are the receipt of consideration representing the value of assets for distribution by way of dividends *in connection with the distribution of profits of a company under the control of not more than five persons* (ie a close company). Unfortunately for the Revenue, its advocate at the hearing before the special commissioners had not relied on this subsection. Had he done so, it seems clear that the scheme would have failed, because the avoiders got their £472,000 in connection with the distribution of profits of companies when under the control of Excalibur, which could have been shown to be a close company.

In fact, no evidence was adduced as to the share structure of Excalibur; so the *Revenue had to argue on appeal* that it was unnecessary to find that "close company status" existed *at the time of the distribution*. It was sufficient, it claimed, if this existed either at the time of the relevant connection or at the time when the avoiders got their money by way of dividends. On this the Revenue *singularly failed* to convince the courts.

The Revenue was thus thrown back on the circumstances instanced in section 461 (c). Here *the Revenue had to show that* the avoiders received the consideration "in consquence of a transaction *whereby* Excalibur subsequently received an abnormal amount by way of dividend." *It was common ground* that the £555,000 was an abnormal dividend; the dispute ranged over the meaning of that little but crucial word, "whereby."

Four material facts were pointed to as constituting that word. The purchase of the shares by Excalibur *in the five* companies which enabled it to secure the payments of dividends by the five companies; the five companies had profits available for dividends; the purchase price of the shares reflected the value of those profits; and subsequently Ex*calibur procured the payment* of abnormal dividend. Those facts, it was urged, sufficed to establish that the share-purchase was a transaction "whereby" Excalibur got the abnormal dividends. Alternatively, the Revenue argued that it sufficed for the transaction in question to be an indispensable condition of the receipt of the dividend.

The House of Lords remained unimpressed by these arguments. The Law Lords drew attention to the express finding of the special commissioners that at the time of the sale Mr Bradman and his associates had *not yet decided whether* to procure the payment of dividends by the five companies. The Law Lords agreed with the majority of the Court of Appeal that the connection between the purchase and the dividend was causally insufficient to justify the term "whereby". And that was conclusive of the issue against the Revenue.

The case has a lasting interest for tax reformers in a tailpiece to the judgments of the Law Lords. Although not foreshadowed in the written submissions, counsel for the tax-avoiders pointed out during the oral hearing of the appeal that his clients had already been assessed to capital gains tax on the gains made when they disposed of their shares. Hence if they lost their appeal on the tax-avoidance scheme, they would be unfairly subjected to a double dose of taxation.

Counsel for the Revenue instantly countered this apparent injustice by saying that, of course, credit would be given if that event occurred. What had been paid in capital gains tax would "by way of concession" be deducted from the assessment on the tax-avoidance. The prospect of double taxation, even if mitigated by the sense *of justice* on the part of the Revenue, was not to their Lordships' liking. Lord Wilberforce observed that: "The interaction of these two taxes seemed to require consideration, with a view to avoiding double taxation, which should be a right and not merely a privilege."

*[1981] II W.L.R. 449

Hopes of a Derby forerunner

RACING

BY DOMINIC WIGAN

PLUM LANE and long-priced winners Wicked Will and Rama Tibodi gave Ian Balding and *John Matthias* an unexpected treble at Bath a year ago and the paid must have hopes of beginning Derby week on a similarly successful note on the corresponding day today.

This time Balding and Matthias, who are looking to

Glint Of Gold and Leap Lively in the classics, have obvious chances of scoring with Brave The Reef, Clouded Vision, and Olympic Glory.

The best bet from that trio may well be the last-named. A compact, well-made colt by Nijinsky out of Shama, a Bold Ruler mare already responsible for three stakes winners including the Sea Bird II filly, Sea Saga, Olympic Victory caught the eye at Newbury in the spring with an encouraging fifth placed effort behind Brave Hussar.

Although he let his supporters down on his following run when favourite, I believe that the Kingsclere colt who continues to work encouragingly, is worth *another chance. I hope to see* him master Peter Walwyn's Prince John bay, John Brush.

Earlier in the afternoon End Of The Line, a highly rated juvenile from the Barry Hills camp is likely to be sent off at prohibitive odds for the Down Stakes. Cauthen's mount, so impressive on his debut, may well follow up, but I intend taking a chance with Wicked Wave.

Edinburgh stages its first evening programme of the year, and in contrast to the possibilities at almost every English course, the going is likely to be good to fast, despite watering.

In the evening feature event, the Royal Scots Cup, a Newmarket challenger may again succeed. Last year Sakeena did the trick for Ron Boss and this time I expect Ian Walker's *Nannina to lift the prize.*

A *six-year-old* bay mare by Martinmas, Nannina had a lean time in 1980 when a fourth was the best she could manage in 10 runs. However, she has been *faring* better in recent weeks and before being given arguably too much to do in a 17-runner handicap at Pontefract for which she started second favourite, Nannina had finished a neck runner-up to Broad Principle in Chester's Eaton Handicap. A repeat of her running on the Roodeye should see her home.

BATH

2.00—Wicked Wave***
3.00—Brave The Reef
4.00—My Gem
5.00—Olympic Victory**
5.30—Clouded Vision

EDINBURGH

7.00—Lilac Star
7.50—Nannina*
8.20—Prionsaa
9.20—Precious Jade

TV/Radio

† Indicates programme in black and white

BBC 1

6.40-7.55 am Open University. (Ultra high frequency only.) 9.52 For Schools, Colleges. 11.25 You and Me. 11.40-12.05 pm For Schools, Colleges. 1.12 Regional *News for England* (except London). 1.15 News. 1.30 Heads and Tails. 2.01-3.00 For Schools, Colleges. 3.15 Songs of Praise. 3.53 Regional News for England (except London). 3.55 Play School (as BBC2 11.00 am). 4.20 Cheggars Plays Pop. 4.40 The All-New Popeye Show. 5.00 John Craven's Newsround. 5.05 Blue Peter. 5.35 Paddington.

5.40 News.
5.55 Nationwide (London and South East only).
6.20 Nationwide.
6.50 Ask The Family.
7.15 Blake's Seven.
8.10 Panorama.
9.00 News.
9.25 The Monday Film: "Butterfield 8," starring Elizabeth Taylor.
11.10 Now Showing.
11.43 News Headlines.
11.45 Education Show.

All Regions as BBC1 except *as follows:*

Cymru/Wales — 12.05-1.15 pm C.I.S. Insurance International Bowls. 1.30-1.45 Pila Pala. 3.00-3.55 Bowls (further coverage). *5.55-6.20 Wales Today. 6.50-7.15* Heddiw. 11.45 Bowls (highlights). 12.25 am Education Shop. 12.50 News and Weather for Wales.

Scotland — 1.10-1.15 pm The Scottish News. 5.55-6.20 Reporting Scotland. 12.10 am News and Weather for Scotland.

Northern Ireland — 3.53-3.55 pm Northern Ireland News. 5.55 Scene Around Six. 6.20-6.50 Land 'n' Larder. 12.10 am News and Weather for Northern Ireland.

England — 5.55-6.20 pm Look East (Norwich) Look North (Leeds); Look North (Newcastle); Look North West (Manchester); Midlands Today (Birmingham); Points West (Bristol); South Today (Southampton); Spotlight South West (Plymouth).

BBC 2

6.40-7.55 am Open University.
11.00 Play School.
4.50 pm Open University.
6.55 Play Tennis.
7.20 Mid-Evening News.
7.35 Plants in Action.
8.00 Arthur Negus Enjoys.
8.15 The Two Ronnies.
9.00 The Paul Daniels Magic Show.
9.40 The Making of Mankind.
10.30 The Light of Experience.
10.45 Newsnight.

LONDON

9.30 am Schools Programmes. *12.00* We'll Tell You A Story. 12.10 pm Rainbow. 12.30 Home and Design. 1.00 News, plus FT Index. 1.20 Thames News. 1.30 Crown Court. 2.00 The Riordans. 2.30 *Monday Matinee:* "The Viking Queen." 4.15 Bugs Bunny. 4.20 Graham's Ark. 4.45 Spectrum. 5.15 Money-Go-Round.

5.45 News.
6.00 Thames News.
6.35 Crossroads.
7.00 The Krypton Factor.
7.30 Coronation Street.
8.00 Chintz.
8.30 World in Action.
9.00 The Sweeney.
10.00 News.
10.30 "Buck and the Preacher," starring Sidney Poitier and Harry Belafonte.
12.25 am Close: "Sit up and Listen," with Jane Lapotaire.

All IBA Regions as London *except at the following times:*

ANGLIA

1.20 pm Anglia News. 2.00 Money-Go-Round. 2.30 Monday Film Matinee: "The Constant Husband," starring Rex Harrison, Margaret Leighton and Kay Kendall. 5.15 University Challenge. *6.00 About Anglia. 6.30 Welcome Back* Kotter. 10.30 Anglia Reports. 11.00 Speedway. 11.30 The New Avengers. 12.30 am The Other Day.

ATV

1.20 pm ATV News. 2.00 The Monday Matinee: "The Bliss of Mrs Blossom," starring Richard Attenborough and Shirley Maclaine. 3.45 Money-Go-Round. 5.15 Father Dear Father. *6.00 ATV Today.* 10.30 Left, Right and Centre. 11.10 ATV News. 11.15 The New Avengers. 12.15 am *Something Different.*

BORDER

1.20 pm Border News. 2.30 Monday Matinee: "The Return of Joe Forrester." 3.45 Money-Go-Round. 5.15 Diff'rent *Strokes. 6.00 Lookaround Monday.* 6.15 Try for Ten. 6.45 Mary Chipperfield and Friends. 10.30 Conference Report (Scottish National Party). 11.30 Border News Summary.

CHANNEL

1.20 pm Channel Lunchtime News, What's On Where and Weather. †2.00 The Monday Matinee: "Very Important Person." 3.45 Money-Go-Round. 5.15 Mr and Mrs. 6.00 Channel Report. 6.20 Cartoontime. 6.30 Survival 10.28 Channel Late News. 10.36 Target Bowls. 11.05 Mind Over Matter. 11.35 News and Weather in French.

GRAMPIAN

9.25 am First Thing. 1.20 pm North News. 2.00 Monday Matinee: "Women of the Year." 3.45 Money-Go-Round. 5.15 Mork and Mindy. 6.00 North Tonight. 6.35 Out of Town. 10.30 Scottish National Party Conference Report. 11.30 Rock Stage. 12.30 am North Headlines.

GRANADA

11.50 am The Bubblies. 1.20 pm Granada Reports. 2.00 Money-Go-Round. 2.30 Monday Matinee. 5.15 Mr and Mrs. 6.00 Granada Reports. *10.30 Star Parade. 11.30 Darts World* Knock-out Cup. 12.05 am Paris by Night.

HTV

1.20 pm HTV News. 2.00 Money-Go-Round. *†2.30 Monday Matinee:* "The Big Job." 5.15 Mr and Mrs. 6.00 Report West. 10.28 HTV News. 10.30 "Twinky," starring Charles Bronson and Susan George.

HTV Cymru/Wales—As HTV West except: 10.05-10.20 am Cymru A'r Mor. 11.05-11.20 Mwy Neu Lai. 12.00-12.10 pm Ffalabalam. 2.00-2.30 Hamdden. 4.45-5.15 Ser. 6.00 Y Dydd. 6.25-7.00 Report Wales. 8.30-9.00 Yr Wythnos. 10.30 World in Action. 11.00 The Brains International Match-play *Darts Tournament.* 11.30-12.30 am Mannix.

SCOTTISH

1.20 pm News and Road and Weather.. 2.00 Monday Matinee: "Anastasia," starring Ingrid Bergman and Yul Brynner. 3.45 Money-Go-Round. *5.15 Emmerdale Farm.* 6.00 Scotland Today. 6.40 Crimedesk. 10.35 Conference Report—SNP. 11.30 Rock Stage. 12.30 am Late Call.

SOUTHERN

1.20 pm Southern News. 2.00 Houseparty. 2.25 "The Limping Man," starring Lloyd Bridges. 3.45 Money-Go-Round. 5.15 Happy Days. 6.00 Day By Day, including Southsport. 10.35 WKRP in Cincinnati. 11.05 Mind Over Matter. 11.35 Rockstage.

TYNE TEES

9.20 am The Good Word. 9.25 North East News. 1.20 pm North East News and Lookaround. 2.00 Money-Go-Round. *2.30 Monday Matinee:* "Sunstruck," starring Harry Secombe. 4.15 Cartoon Time. 5.15 Mork and Mindy. 6.00 North East News. 6.02 Sale Of The Century. 6.30 Northern Life. 10.30 North East News. 10.32 Northern Report. 11.00 S.W.A.T. 12.00 In A Looking Glass.

ULSTER

1.20 pm Lunchtime. †2.30 Monday Matinee: "His Lordship," starring George Arliss. 3.45 Money-Go-Round. 4.13 Ulster News. 5.15 Mr and Mrs. 6.00 Good Evening Ulster. 6.30 Here's Boomer. 10.29 Ulster Weather. 10.30 Degrees of Christian Unity. 11.30 Bedtime.

WESTWARD

1.20 pm Westward News. †2.00 The Monday Matinee: "Very Important Person," starring Leslie Phillips. 3.42 Gus Honeybun's Birthdays. 3.45 Money-Go-Round. 5.15 Mr and Mrs. 6.00 Westward Diary. *10.32 Westward* Late News. 10.36 Target Bowls. 11.05 Mind Over Matter. 11.35 Faith For Life. 11.40 West Country Weather and Shipping Forecast.

YORKSHIRE

1.20 pm Calendar News. 2.00 *Money-Go-Round.* 2.30 Monday Matinee: "Beach Party," starring Bob Cummings, Dorothy Malone and Frankie Avalon. 5.15 Sha Na Na. 6.00 Calendar (Emley Moor and Belmont *editions). 6.35 Happy Days.* 10.30 Calendar Question. 11.00 Rockstage.

Radio Wavelengths

1 1053kHz/285m 1089kHz/275m	3 1215kHz/247m & 90-92.5vhf stereo	BBC Radio London: 1458kHz, 206m & 94.9vhf
2 693kHz/433m 909kHz/330m & 88-91vhf stereo	4 200kHz/1500m & 92.95vhf	Capital Radio: 1548kHz, 194m & 95.8vhf
		London Broadcasting: 1151kHz, 261m & 97.3vhf

F.T. CROSSWORD PUZZLE No. 4,582

ACROSS

1 I dance about in case (6)
4 Current tax approach (6)
8 Move round to solution by warder (7)
9 Wanting to know how scoundrel promises to pay (7)
11 Puff always secures donkey (5, 5)
12 Flag one in the eye (4)
13 Secure position of daughter with one drink (3, 2)
14 Counsel in criminal case back playing football (8)
16 Firm a bird finds going all out (4, 2, 2)
18 Beefy Scotsman (5)
20 Two like this fair (2-2)
21 Game to have two kinds of bacon (10)
23 Wrong complaint to shout (4, 3)
24 Bloke is re-modelling pillar (7)
25 Catch female lower down (6)
26 Mars point to rowing crew (6)

DOWN

1 Answer for initial victory over painful cry (5)
2 Public school surgery (7)
3 Hurries to relative with sex-appeal (5, 2, 2)
5 Produce action in court (5)
6 Old priest's having one on with literal omission (7)
7 Sin causes broken cheek (9)
10 Supply of timber in Oxon (9)
13 Severe rain can do damage (9)
15 Bring leaf that may be easily broken (9)
17 Medical man should have extended thirst (7)
19 Willing to join member with disability (4, 3)
21 Stupid river in part of Scotland (5)
22 Start where film is made (5)

The solution to last Saturday's prize puzzle will be published with names of winners next Saturday.

RADIO 1

(S) Stereophonic broadcast

5.00 am As Radio 2. 7.00 Mike Read. 9.00 Simon Bates. 11.00 Andy Peebles. 12.30 pm Newsbeat. 12.45 Paul Burnett. 2.30 Dave Lee Travis. 4.30 Peter Powell. 7.00 Stayin' Alive, with Andy Peebles. 8.00 Richard Skinner. 10.00-12.00 John Peel (S).

RADIO 2

5.00 am Ray Moore (S). 7.30 David Hamilton (S). 10.00 Jimmy Young (S). *12.00 John Dunn (S). 2.00 The Ed* Stewart Show (S). 4.00 Steve Jones (S). 5.45 News and Sport (S). 6.00 David Symonds, with Much More Music (S). 8.00 Folk On 2 (S). 9.00 Humphrey Lyttelton with the Best of *Jazz (S). 9.55 Sports Desk. 10.00* Town and Country Quiz. 10.30 Star Sound. 11.00 Brian Matthew with Round Midnight. 1.00 am Trucker's Hour with Sheila Tracy (S). 2.00-5.00 You and the Night and the Music (S).

RADIO 3

6.55 am Weather. 7.00 News. 7.05 Morning Concert (S). 8.00 News. 8.05 Morning Concert (contd.). 9.00 News. 9.05 This Week's Composer: Ernest Chausson (S). 10.00 Music for *Clavichord (S). 10.35 Clarinet and* Piano Recital (S). 11.20 Royal Liverpool Philharmonic Orchestra (S). 1.00 pm News. 1.05 BBC Lunchtime Concert (S). 2.05 Matinee Musicale (S). 3.10 Pianists in Profile (S). 4.10 New Records. 4.55 News. 5.00 Mainly for Pleasure (S). 7.00 Sibelius Symphony No. 6 (S). 7.30 Crowded Hours. 8.20 Georg Philipp Telemann concert (S). 10.05 Breaking Cover (short story). 10.30 Jazz In Britain (S). 11.00 News. 11.05-11.15 Ravel (S).

RADIO 4

6.00 am News Briefing. 6.10 Farming Week. 6.25 Shipping Forecast. 6.30 Today, including 6.45 Prayer for the *Day, 7.00, 8.00 Today's News. 7.30,* 8.30 News Headlines, 8.45 Thought for the Day. 8.35 The Week On 4. 8.45 Miles Kington explores the BBC Sound Archives. 9.00 News. 9.05 Start the Week with Richard Baker. 10.00 News. *10.02 Money Box. 10.30 Daily Service.* 10.45 Morning Story. 11.00 News. 11.05 Elgar—A Soliloquy (S). 11.50 Poetry Please. 12.00 News. 12.02 pm You And Yours. 12.27 The Small, Intricate Life of Gerald C. Potter. 12.55 Weather; Programme News. 1.00 The World At One. 1.40 The Archers. 1.55 Shipping Forecast. 2.00 News. 2.02 Woman's Hour. 3.00 News. 3.02 Afternoon Theatre (S). 4.35 A Breath of Fresh Air. 4.45 Story Time. 5.00 PM: News Magazine. 5.50 Shipping *Forecast. 5.55 Weather; Programme* News. 6.00 News. 6.30 Just A Minute (S). 7.00 News. 7.05 The Archers. 7.20 Start the Week with Richard Baker. 8.00 The Monday Play (S). 9.30 *Kaleidoscope. 9.59 Weather.* 10.00 The World Tonight. 10.30 Science Now. 11.00 A Book at Bedtime. 11.15 The Financial World Tonight. 11.30 Today in Parliament. 12.00 News.

BBC Radio London

5.00 am As Radio 2. 6.30 Rush Hour. 9.03 Morning Star. 10.03 The Robbie Vincent Telephone Programme. 12.30 pm London News Desk. 12.40 The Total Music Show. 2.30 Tony Blackburn. 5.00 News. 5.15 Music *on the Move. 6.33 Inside London.* 7.03 Black Londoners. 8.00 As Radio 1. 10.00 Question Time from the House of Commons. 11.00-5.00 am Join Radio 2.

London Broadcasting

5.00 *am AM: Bob Holness and* Douglas Cameron. 10.00 Brian Hayes. 12.00 LBC Reports. 8.00 pm London Life. 9.00 Mike Dickin's Nightline. 12.00 LBC Reports Midnight. 1.00 am Night Extra. 3.30 LBC Cinema. 4.00 After Eight Sunday (repeat). 5.00 Morning Music.

Capital Radio

7.00 am Mike Smith's Breakfast Show. 10.00 Michael Aspell. 12.30 pm Mike Allen. 1.00 First Report. 1.10 *Mike Allen continued.* 3.00 Roger Scott. 6.30 London Tonight. 8.30 Alan Freeman (rock music). 10.30 John Sach's Late Show. 12.00 Midnight Special.

THE ARTS

Maria Ewing and John Rawnsley

Glyndebourne

Il barbiere di Siviglia

With the new *Barber of Seville*, seen on Saturday in an exceptionally confident and polished first-night performance, Rossini returned in sparkling guise to his old home-from-home at Glyndebourne. On the Continent *Il barbiere* has reputedly suffered the wildest excesses of produceritis. In London it has been the opposite, with old stagings tottering on, proving little more than the indestructibility of the work. Glyndebourne's version will be called traditional both by those who miss "fresh ideas" and by those who are relieved to be spared them. In fact there is no tradition for *Il barbiere* except for weary slapstick by ageing buffos. The producer John Cox and his colleagues William Dudley (designer) and Sylvain Cambreling (conductor) work from the text and the music, not a tradition so much as an ideal.

Since it was Rossini's evening and since it marked the Glyndebourne début of the gifted young French conductor (whose name has occurred on this page before now), the music shall come first. The beautifully firm playing of the overture (brilliant at measured speeds typical of the performance as a whole) revealed a personality in the pit to whom the London Philharmonic would respond keenly, and so it continued. The details of Rossini's scoring shone, one noticed how his key-changes at once underpin and propel the ensembles. Both orchestral and vocal tone had a burnish and a resonance not achieved in this house every night.

The casting is strong. Figaro is the biggest role John Rawnsley has so far tackled for the Festival. The voice was in splendid condition. "Largo al factotum," often reduced to clatter and knockabout, came up fresh and bubbling. Mr Rawnsley took command of the stage when Figaro needed to do so but did not shove the character continually into the foreground as many baritones exhaustingly do, forgetting that the opera was first called *Almaviva* and that the original Almaviva, Manuel Garcia, was the star. In one matter Figaro's seeking for and willing acceptance of the Count's tips, Mr Rawnsley perhaps showed a little too much English diffidence.

The Almaviva of Max-René Cosotti is quite able to hold a central position. This tenor, Glyndebourne's legitimate successor to Juan Oncina and Luigi Alva, grows in experience and assurance without losing his lyrical delicacy. He is a graceful, witty actor, conveying admiration for Rosina as well as greed for her dowry. His Rosina was worth scheming for. The American mezzo Maria Ewing returns to give a dazzling yet entirely apposite display of *jolie laide* charm, with a mouth from here to there, an irresistible grin, an armoury of wilful pouts and a foot that conveys as much impudent insubordination as most Rosinas do with their whole body. All this is firmly controlled by resinous singing that admits no difficulties in Rossini's liberal decorations and finds in them endless legitimate opportunity for variety of timbre, dynamics and verbal point.

If the two low-voiced buffos are definitely and deliberately subordinate to the lovers and to the barber, they are by no means without interest. Claudio Desderi makes his delayed Glyndebourne début as Bartolo (he was to have sung Faninal last year) with a nice study, not of the usual noisy old buffoon, but a man in the prime of life—conceited, complacent, and remarkably insensitive. Ferruccio Furlanetti's Basilio is also younger than most—a sandy-haired crow, seedy and nasty but humorous, not totally dislikable. Only the Berta of Catherine McCord, a hundred-per-cent British Mrs Mopp who can only have wandered into Seville by mistake, strikes an alien but not incompetent note.

For Seville is undoubtedly the location. The tower of La Giralda queens it over Mr Dudley's backcloth (subtly lit by Robert Bryan): the eye moves forward past houses from the Romantic Spain of Richard Ford to strong patterns and cubist, tumbled planes doing homage to the equally vanished worlds of Gontcharova, Larionov and Picasso's *Pulcinella*. The mixture sounds impossible but, with reservations about the modern-looking shelf-units, it works a treat. The rearrangement carried out during the storm towards the end of the opera is too restless. This is simply a matter of degree: no reason why the storm-music shouldn't be used for action, and in any case producer and designer have already gained much credit for unfashionably keeping the curtain down all through the overture.

Mr Cox earns gratitude for many other things too—for the restrained treatment of the opening scene, for once really suggesting cold fingers and sleepy limbs at the break of day; for somehow with complete naturalness bringing off danger-spots like the music lesson (Miss Ewing sings "Contro un cor," and very well) and the shaving

RONALD CRICHTON

Covent Garden

Royal Ballet Anniversary Gala

by CLEMENT CRISP

If the Royal Ballet ever drowns, the experience may well be like last Friday's anniversary performance: a lifetime of steps, pictures, music flashing by—though without the roar of applause that greeted each incident on this occasion. The evening was devised and introduced by Michael Somes; it comprised some 38 extracts from ballets, illustrative slides, and Mr. Somes' avuncular presence to guide us through what was, in effect, the history of the company as he knows it.

It was worthy, idiosyncratic, and also rather long—but how else encompass half a century of creative achievement? It was staged with exemplary smoothness and aplomb: two companies, scenery, music, slides, all impeccably on cue, and the scores played by the Royal Philharmonic Orchestra far, far better than is usual on ballet nights with the Opera House's own band. It was a very personal view of events—if I say that the evening began with War, Pestilence and Famine from *Job* and ended with the final ten minutes from *Les Noces*, there is some indication of the individual tone of the proceedings—but at the close of four hours something very positive and engrossing had been said about the history of our national ballet as a choreographic institution with few peers.

It was not an occasion—unlike the 1970 Ashton gala — for reviving memories of lost delights: the only novelties were the Mirlitons' dance from the Ivanov *Nutcracker* (deadly dull); the Flower Girl's solo from *Nocturne*; a fragment from *Shadowplay* with Dowell and Rencher in their created roles; the secondary trio from *Ballet Imperial* in wrong but wonderful Berman costumes; part of the last act *Ondine* divertissement; and—the most exciting dancing of the whole evening—Lesley Collier at her brilliant best in the 'click' solo from the divertissement in Cranko's *Prince of the Pagodas*.

One other performance I thought outstanding: Alain Dubreuil as the Cancan dancer from *Boutique Fantasque*, capturing much of the subtle wit and elegant abandon of Massine in the role. Elsewhere the danced items were from the current or very recent repertory, nor were there any unexpected excitements in casting, save for the delicious appearance of Doreen Wells, with Carl Myers very sensitive as the Painter, in the final duet from *The Two Pigeons*, and Antoinette Sibley returned to the final *Dream* duet with Dowell, a still felicitous partnership.

It was, truth to tell, a comparatively staid occasion, its value being in suggesting something of the range and quality of the Royal Ballet's choreographic identity, and the interpretative stature of the company today. We could admire artists of both troupes in their present roles and also admire Mr Somes's ability to fit every piece of his jigsaw of ballets, interpretations, priorities, temperament, to create his picture of the company.

There were a few oddities: no big ballerina display piece from the 19th century repertory; the inclusion of *Voices of Spring*, Ashton at his most lollipopular, instead of another, more worthy piece of his choreography; on mention of illustrious guests—Danilova to Chauviré and Makarova, Bruhn to Baryshnikov—though Rudolf Nureyev was paid proper tribute; little to show the young hopefuls of the company as promise for the future.

I am starting to behave as the Royal Ballet knows all critics do: carping and nit-picking, instead of greeting all that is best in the best of all possible ballet companies. *Mea culpa*. The evening was illuminating, in more ways than one, and Mr Somes reminded us, most properly, of what we owe to Dame Ninette and her choreographers and staff. What he omitted, and modesty can go too far, was any mention of his own contribution, save in a passing joke as to the identity of Fonteyn's partner in a slide showing *La Péri*o. Let me then express grateful thanks to him both for the evening, which was presented with magnificent efficiency, and for his long and distinguished service to our national ballet.

Maxwell Davies at Bath

by MAX LOPPERT

The weather for opening weekend was mostly soggy; and the range of this year's Bath Festival (May 22-June 7) has been appreciably restricted by financial considerations (fewer big choral and orchestral, even chamber-orchestral, concerts than before). Yet this remains, in blends of pleasure, adventure, and instruction, and in siting itself in one of the world's most naturally festive cities, the leading English music festival. It opened impressively, with the first of several important premieres to be given during the fortnight—Peter Maxwell Davies' Piano Sonata, played during the recital by Stephen Pruslin at the Guildhall on May 23.

This new sonata is a powerful seven-movement construction of large scale and scope—and, at a first hearing, a tough nut to crack. Pruslin's programme note claims links with the Second Symphony that will become more readily apparent (and can perhaps then more profitably be traced) after the first British performance of the latter work at the Proms in July. For the present, the sonata is most confidently approached as an independent entity, in which guise it stands (of course) perfectly complete. The form, though of considerable complexity and inner allusiveness, is clearly outlined: the seven movements—separate, though linked by an *attacca* marking that Pruslin did not always heed—combine suite and sonata after the model of late Beethoven. This is a model owned by the composer: Op. 111, the A flat Piano Sonata (played earlier in the recital), provided him with what Pruslin calls an "inner ideal," though the structural influence of the late quartets is little less evident.

Thus, after an opening 10-bar announcement of material whose crucial significance to the whole one recognises immediately (even after a single hearing), the first and seventh movements explore what might loosely be termed sonata-form discourse—the last, in its disintegrative trickling towards quiet recollection of the work's opening, comprehensively. Movements 2 and 6 are scherzos with trio;s 3 and 5 are slow passacaglias; and 4 is the centrepiece, probably the heart of the work, a *Cantabile con moto* in three sections, much of it in a bare two-point counterpoint. The Beethoven connection must be further stressed (even at the risk of suggesting what is very clearly not the case, that the work is in any elaborate way an overt act of reverence). In the first movement especially, the style of the piano writing intimates, in both its striding, up-welling figuration and its chains of treble trilling, a spiritual world questing and diaphanous, muscularly intense and capable of luminosity.

The music establishes its identity soon, and incisively. It is an identity apparently very different from those of recent Maxwell Davies compositions, in which an aura of the composer's Orkney home has been implanted in the notes, a texture of spray, wind, and stone, a character of physical picturesqueness—this has been one of the most marvellous features of his recent creation. While the sonata comes bearing a poetic epigraph, about gulls and surging firth, taken from the Orkney poet Charles Senior (to whose memory the work is dedicated), and though there is a potent sense of ceaseless organic activity in its harmonic schemes, what seemed so striking about the new piece is its determined avoidance of any superficially found "beauty."

This is, needless to emphasise, only an interim pronouncement—a work fashioned with such sternly skilful concentration on musical argument will hardly disclose many of its secrets at a first encounter. And, no doubt, the uniquely alert and committed Pruslin will learn, as he delves ever deeper into the musical substrata, to persuade the listener that longer stretches of the sonata's interior movements are more "pianistic," more animally alive to the physical qualities of the instrument, less cerebral, than they appeared to be on Saturday. The first impression was magnificent, but forbidding.

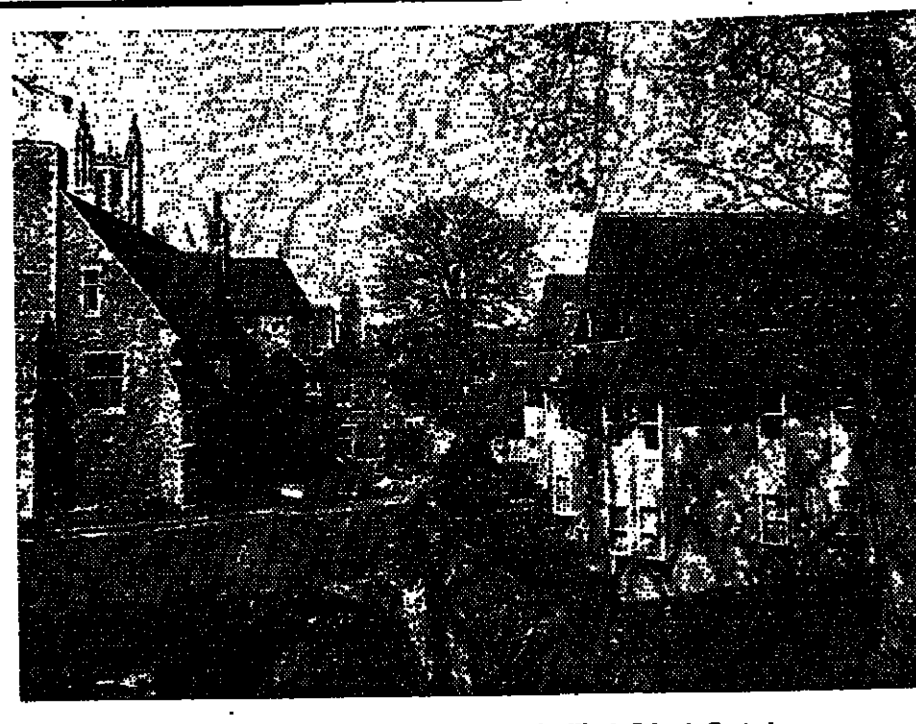
This left a marked contrast with the other Maxwell Davies performance of the first Bath weekend — the chamber opera *The Lighthouse*, which the Fires of London gave at the Theatre Royal on May 24 (their production will be taken to many European festivals over the coming summer months). Andrew Clements described the work in close detail in these columns after its first performance at the 1980 Edinburgh Festival. Like him, I (and a large, enthusiastic audience) relished hugely the high dramatic tone of the piece. Into it Maxwell Davies has infused both the bleak nature poetry of the "Orkney canon" and the neo-expressionist shock devices of the earlier music-theatre inventions. The result is a tightly worked operatic *conte noir*, an experience in the theatre quite as gripping as any gained from, say *Il tabarro* (the Puccini comparison is intended as praise, and should certainly be taken as such).

Doubts arose, though, from the actual quality of its stage realisation, at least as judged on this occasion. Maxwell Davies has placed a heavy burden on the subtle and sure theatricality of the three singing-actors who comprise the complete cast. It cannot be said that Neil Mackie, Christopher Keyte, and David Wilson-Johnson were bearing it with absolute ease: in the second half, as the lighthouse keepers begin to unleash their horror-struck fantasies and fears, there was much groaning and rolling on the floor, as of a play-group gone slightly and comically amuck, and for this the producer, David William, must take most blame. The purely musical realisation, on the other hand, was as expert as we expect — singing accurate and atmospheric, playing (under John Carewe) of signal confidence and brilliance.

Arts Council grant aids purchase of Maureen Duffy MS.

The Arts Council has approved a grant of £275 to King's College, University of London to assist the college with the purchase of the autograph manuscript and notebooks of Maureen Duffy's novel, *Capital*.

The novel, which was published by Jonathan Cape in 1975, is set in a college called "Queen's," situated in the Strand. Miss Duffy is a former student of King's.



Terry Kirk

The new boarding house for the King's School, Canterbury

Architecture

Top of the class

by COLIN AMERY

Architects are often criticised for being inhuman. This is not to say that they actively dislike their fellow humans but they do tend to design buildings that fail to take account of ordinary human needs. The problem is that architects are trained and psychologically tuned up to produce Architecture—with a capital A. Good architecture is often produced by a reversal of this process. If you design a building that is a response to a certain set of human needs there is a good chance that you will also produce one of architectural character.

There is one new building that is a good example of respect for people and indeed respect for places, standing in the precincts of the great cathedral at Canterbury. It is hard to imagine a more sensitive site for a new building in the whole of England. It is a new boarding house for The King's School and the architects are Robert Maguire and Keith Murray.

Maguire and Murray have been working in partnership since 1959. Their work is probably not very well known; it tends to be discreet, careful and modest and the architects themselves are not the sort of people to court publicity or fame. This is not to say that their names should not be trumpeted loudly because they have over the years made several important additions to the stock of good buildings in this country.

Before looking in detail at the house at Canterbury it would be useful to survey briefly their major works. My favourite is their oldest, the church of St Paul, Bow Common, on a pretty undistinguished street corner in Stepney. It is a strong and original purple brick cube with a central altar that is lit from the roof. In strangely uncertain letters over the porch are inscribed the words "This is the Gate of Heaven."

At a small convent in Kent, St. Mary's, West Malling, these architects have added a cloister and a new church to a complex network of abbey buildings that date from the 10th century. The cloister is one of the loveliest new places that I know.

There is a new church in Crewe, a new quadrangle at Trinity College, Oxford—which has a kind of Japanese simplicity—and some slightly more controversial buildings at the University of Surrey at Guildford. All share a common factor: they are unmistakably appropriate for their sites and their human purposes.

The site of the new boarding house for The King's School is almost completely surrounded by mediaeval and Tudor walls. From outside the walls all that is visible of the new school house are the tops of gables of the tiled roofs. The sense of the new construction being a part of the clustering of domestic buildings beneath the cathedral is carefully nurtured. The architects have sensitively considered the precincts as though the buildings were plants growing up in a controlled landscape. Some pruning and some re-planting is necessary in the most august gardens and yet the overall beauty of the whole garden cannot be compromised.

The house, which accommodates 52 boys, matron, tutor and housemaster, is planned as a series of four pavilions linked by a series of passages. It is built on three storeys with some large dormitory rooms in the roof. The material used for the walls is not traditional. It is concrete blockwork laid in alternating wide and narrow courses. While the inspiration and scale of the building comes from the surrounding older vernacular buildings there is no attempt at imitation. There is a consistency of surface between the old and new buildings.

Everywhere you look at Luxmoore House in Canterbury the scale is right. It is right that the red tiled roofs should dominate the walls. It is right that there should be small quadrangles in the precincts. It is right that the eaves and the windows should be painted a fresh white. It is right and very satisfying to be lured into the entrance by a curved wall which acts as a kind of achitectural shoe horn easing the new buildings into their tight corner among the old walls. The important thing is that they fit.

Maguire and Murray are also building accommodation for day-boys at The King's School on another equally sensitive site. They have acted as much more than architects for the school—studying the precincts and persuading the local amenity groups that it is possible to build within the most sacred architectural groves and that our ancestors did it all the time. Planning permission has been forthcoming although not without tremendous trouble.

It will be interesting to see the other buildings when they are complete, but a visit to Canterbury is much to be commended now.

Wembley Arena

Bruce Springsteen

by ANTONY THORNCROFT

Bruce Springsteen is the hype that happened: the man chosen—by himself, his record company, a few critics—to become the body and soul of rock music, the heir to Presley and Dylan who actually delivered. The ticket touts outside his present run of packed Wembley concerts are tangible proof that Springsteen's second UK visit is the rock occasion of the year.

And deliver he does. For well over three hours this wiry 31-year-old from New Jersey who looks just right—like a skilled garage mechanic—lives out his own fantasies and those of his audience in a perfect pastiche of rock music. The songs are about street life, about cars and girls and urban squalor and the American dream. The band has been with him so long that it is a precise instrument, not overwhelming Springsteen but underpinning his rough and ready voice which sounds like every popular hero from Dylan to Elvis (Costello).

For extra lift there is Clarence Clemons on saxophone adding sensuous colouring to the twin keyboards and the guitars. And Springsteen does all the right things naturally. He climbs over amplifiers to get nearer the people; he dances into the audience; he drags a girl on stage. He is the completely unaffected star, without side or pretension. He hardly talks; he just performs and as the hours pass the music of the last 25 years asserts its power, its ability to involve both the body and the emotions (though I have heard a better sound system at Wembley).

By the end the fact that Springsteen has not written any really classic songs becomes a strength—over-familiar melodies come between the performer and the crowd. The best Springsteen songs—"Sherry darling"; "Born to Run"; "Hungry Heart"—are perfect symbols of rock, full of echoes but absolutely right in their range and marvellously put over by Springsteen who, quitely rightly, is a stage performer rather than a recording artist.

All human life may not have been at Wembley on Friday, but as Springsteen quietened the vast arena for songs like "Independence Day" and "This land is my land," only to rev it up again and keep it primed almost to the midnight hour, the lives of the thousands present were caught and refined and revived.

Tower's arms on display

For the first time in its 900-year history the Armouries of the Tower of London is putting its treasures on exhibition elsewhere; 120 of the best pieces will be seen at the Sainsbury Centre in Norwich from June to August, 1982, and then from October to December next year they will be on display in the Cincinnati Art Museum in Ohio.

The Norwich Union is supporting the show in Norwich and the Central Trust Company is helping out in Cincinnati. Among the exhibits are a suit of armour of Henry VIII and also a gun made for the King.

CRICKET by TREVOR BAILEY

Recalled Willis lures Scots on rocks

WARWICKSHIRE beat Scotland on Saturday in the most peculiar limited overs game I have witnessed, because victory was not enough to qualify for the quarter finals of the Benson and Hedges Cup. The Midlanders also had to capture nine wickets because a win would have given them only the same number of points as Derbyshire.

They succeeded in their objective, eventually winning by 18 runs, but this additional requirement produced several features not normally encountered in one-day cricket. Bob Willis set extremely attacking fields for both his fast and slow bowlers, and eventually introduced occasional spinners in an attempt to buy wickets as well as keeping Scotland just within sight of their target. He used seven bowlers.

As a result the game retained its interest until the end, instead of dying a couple of hours earlier. Warwickshire totalled 221 for five, while Scotland were bowled out for 203. Without this necessity to take wickets, Scotland would have struggled to reach 160 on a slow pitch with an untrustworthy bounce and a sluggish outfield.

Nevertheless, there has been a noticeable improvement in the team this year. Their greatest moment was when they had Yorkshire at 29 for five and in real trouble, and with more experience, they might have achieved their first victory in the competition.

These matches against the counties have undoubtedly increased the interest in the game in Scotland, where there are far more enthusiasts than is often realised south of the border.

Saturday's match was at Titwood, a large, attractive Glasgow ground with a first-class square and outfield. The Scottish Sports Council is giving £50,000 towards a new pavilion and when this is built and other facilities added, the Clydesdale club will become the official home of Scottish cricket.

England's 13-man squad for the Prudential one-day internationals against Australia was predictable, the only surprises being the inclusion of two newcomers, Jim Love of Yorkshire and Geoff Humpage of Warwickshire, and the recall of Derek Randall of Nottinghamshire and Willis.

The young Yorkshire batsman has taken full advantage of the opportunity to score runs denied by the weather to many of his rivals. He has made three impressive centuries so nobody can question his selection.

The choice of the two Warwickshire players is more surprising, though it is entirely understandable when taken purely in terms of beating rather ordinary limited overs opposition. Humpage is an effective, often spectacular stroke-maker who is a potential match winner in this type of cricket, but his keeping is less impressive, though it has improved.

In terms of pure keeping ability, especially standing up on a difficult pitch where the ball turns, as it did at Titwood, there are probably seven more accomplished practitioners among the counties, but he will have few problems standing back in limited overs cricket.

The recall of Willis underlines the shortage of good English pace bowlers. He is fit again and has been bowling well. In a game when he is required to send down only a limited number of overs, there is no reason why he should not prove very effective.

What is more doubtful is whether he can come back for a third or a fourth spell after tea in a Test. He is not as mobile in the field as he once was, so one cannot help feeling that winning these one-day games is probably less important than trying to find a successor for Willis.

The return of Randall will improve the standard of fielding, which declined in the Caribbean, and he remains a fine batsman who does not always do himself justice.

The lack of cricket experienced by the Australians could mean that they will approach these three internationals in a different way than if they had been in form, and treat them as practice, as they have done in the past.

Their main objective is to regain the Ashes, so two sound innings by batsmen at a tempo possibly unsuited for one-day cricket could prove more beneficial than simply concentrating on the special requirements of this form of the game.

TENNIS by JOHN BARRETT

Flocking in for a touch of grass

IN THE run-up to Wimbledon, now only three weeks away, the historic tournaments which begin today in Beckenham, Kent, and Manchester, play a vital role.

With grass practice so hard to find, many players with serious Wimbledon hopes have again chosen to miss the French Open.

In the £10,406 GMC Moben Kitchens tournament at the Northern Lawn Tennis Club, there is a large influx of Americans including Roscoe Tanner, the 1979 Wimbledon finalist, Dick Stockton and Pat Dupre, both former semi-finalists, along with John Sadri, Peter Fleming, Victor Amaya and Bill Scanlon.

Their presence, together with the Australians, John Alexander and Phil Dent, plus the three Lloyd brothers from Britain, has already resulted in a Saturday sell-out.

Among the "invaders" at Beckenham Cricket Club for the £12,500 Kentish Times Beckenham Tennis Week are Brian Teacher, the Californian holder of the Australian Open, Vijay Amritraj and Ramesh Krishnan, the gifted Indians, and John Austin, holder of the Wimbledon mixed title with sister Tracy.

Jonathan Smith and Andrew Jarrett of Britain may get an early sight of their Davis Cup opponents next month, the New Zealanders Chris Lewis and Russell Simpson, while John Feaver and Robin Drysdale will be trying to persuade captain Paul Hutchins that they are worthy of the second singles spot ahead of Richard Lewis.

The women at Beckenham include the Americans Pam Schriver, Terry Holladay, Sheila McInerney and Nancy Yeargin and several excellent young Australians, New Zealenders, South Africans and Britons.

Neither tournament can be in the Grand Prix of the women's series because of the clash with the second week of the French Open. But both retain the garden party charm that was always such an attractive part of the British summer season and conjures memories of a bygone age.

The first tournament at the Northern LTC in West Didsbury was held in 1880—much to the anxiety of the croquet members. Six years later the Kent All-comers Championships began on 10 courts at the Beckenham Cricket Club with the final between Mr. H. Chipp, the winner, and Mr. E. J. Avory being described by the Field correspondent as — "terribly tedious." He said: "Both players stayed at the back of the court and displayed extreme caution."

Curiously Avory lived to see his grandson Ted, who became LTA champion, win the 1932 tournament.

There was a deficit on the first tournament of £1 10s 9d and the cricketers, admonishing the tennis committee, agreed to stand the loss "provided that it does not happen again."

Both tournaments rely on extensive voluntary help—many of the 150 Kent enthusiasts take a week's holiday, as do some of the 50 in Manchester—and both depend upon multi-sponsorship. John Stickland, Beckenham chairman for nine years, recruits local support and continues to promote a profitable ventre that has come a long way since 1963, when the Kent Championships became the first sponsored tournament in Britain, thanks to a £500 donation from Rothmans.

In Manchester, local entrepreneur Harvey Demmy has transformed the Northern Championships which were abandoned in 1975 for lack of support. Over the past five years he has involved the Greater Manchester Council and persuaded various firms to support a tournament that can rightly claim to be the Wimbledon of the North.

After recent rains, it is a miracle that the courts at both clubs are playable. The natural gravel of Beckenham's ground and the skill of groundsman Derek Harper enabled the huge qualifying tournament to begin on time yesterday afternoon.

In Manchester, Jack Massey (to my mind the finest groundsman in Britain) has had his magnificent courts in play since early May thus demolishing the myth about Manchester weather. In a crassly commercial age these two valuable tournaments with the cheerfully amateur approach deserve to succeed.

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Good question bad answer

WITH THE Government now well into its third year in office, the prospects for some solid recovery from the very sharp slump in output and employment of the past 15 months is becoming of pressing interest to politicians as well as the business community and to economic forecasters. Ministers must find it disturbing, then, that the consensus view of forecasters is becoming steadily more solid; we are near the bottom of the slump, but there is nothing but the most sluggish recovery in prospect as far as the eye can see.

The latest expressions of this view are published today by the Confederation of British Industry and the National Institute of Economic and Social Research, and while there is still a wide divergence between the extremes among forecasters, ranging from strong recovery according to Professor Patrick Minford to renewed slump according to the Cambridge protectionists, the new forecasts express the view of the great majority.

Only too true

The National Institute's appraisal is accompanied by some comments which Ministers are likely to find too true for comfort. The reduction of inflation—the Government's prime objective—seems likely to falter in the high single figures, which is hardly a victory. Monetary excess has been built into the base, and taxes have been raised. Meanwhile, the contraction of the whole economy has forced a Government opposed on principle to intervention to bail out weak industries on an unprecedented scale, and the pressures to attack unemployment through make-work projects will grow. Most disturbingly, though more speculatively, the Review attacks the hope that at least industry is now "leaner and fitter." Growth cannot be based on the fear born of recession.

Now it is possible, of course, that events will make fools of the forecasters, as they have before: but hoping for their discomfiture is hardly a substitute for policy. Realistically the Government must face the possibility that its strategy is not simply producing temporary discomfort, but needs in some respects to be changed. There is less than a year left for the appearance of unexpected good news to confirm the present stance.

When it comes to alternatives, however, the forecasters are less helpful. The CBI lobbies for marginal and sometimes internally inconsistent changes. The National Institute continues to favour abandoning policies which appear to be failing now in favour of those known to have failed in the past—reflation combined with incomes policy.

Pot and kettle

This amounts to little more than the demand-side pot calling the supply-side kettle black. Indeed, the National Institute's faith in "conventional demand management" is a little odd, because its forecast has changed very little since the March Budget. It is thought that the effects of lower interest rates and a lower exchange rate will largely balance the effects of higher taxes, with consumer spending down but investment and exports up compared with the February forecast. Foreign events have of course had an influences have, but the Chancellor surely deserves an acknowledgement that his measures were aimed to produce precisely these effects.

It seems legitimate, then to look beyond macroeconomic management for the seeds of success and failure. We ourselves, for example, have repeatedly suggested that there are damaging technical faults in the definition and management of monetary policy, and that under sensible rules, productive public sector investment should be encouraged rather than blocked. Changes in these areas might have quite quick effects. For the longer term, the Government is sadly behindhand with its plans to attack the structure of the labour and product markets—and, we would add, of the housing market.

More radically, some critics — including senior officials — argue that the whole emphasis on the money supply is misplaced, and that policy should be addressed to the creation of credit or to the exchange rate. Most radical of all is the underlying thought of the Cambridge school—that the problems of an economy which has been declining for more than a century under every conceivable regime can only be addressed through policies appropriate to a developing economy. A debate on these issues would be more stimulating and possibly more productive than raking over the embers of the monetarist-Keynesian argument yet again.

A warning from Moscow

HERR Helmut Schmidt, the West German Chancellor, has suddenly become the target of a barrage from Moscow, conjuring up memories of the German invasion of the Soviet Union 40 years ago. Sharply worded articles have accused him of abandoning detente and of helping President Ronald Reagan of the U.S. to aggravate world tensions.

It is no coincidence that these attacks have followed upon Herr Schmidt's visit to Washington. His meeting with President Reagan resulted in a re-affirmation of the intention of Nato to deploy new and more powerful intermediate range nuclear weapons in Europe, coupled with a much less precise commitment to try first to negotiate a limit on how many of these weapons either side should be allowed.

Concession

No doubt the Russians are trying to make capital of Herr Schmidt's domestic difficulties with a vocal portion of the supporters of his Social Democratic-Free Democratic coalition who resist the Nato plan. He and Herr Hans-Dietrich Genscher of the Free Democrats, his coalition partner, have both threatened to resign unless their parties toe the line. But the Russians must be aware that any alternative Government in Bonn might be more rather than less inclined to follow where Washington leads.

An interpretation of Moscow's intentions may be helped by recalling the events of Herr Schmidt's visit to Moscow last July. At that time he was instrumental in persuading President Leonid Brezhnev to drop his insistence that there could be no talks about the new weapons until Nato had rescinded its decision to deploy them by December 1983. Mr. Brezhnev must have looked upon that as a concession for which he has had no reward.

Events and disputes in the Kremlin are well hidden from the eyes of ordinary mortals. But it is not unreasonable to suppose that Mr. Brezhnev is the protagonist there of detente in Europe, whatever his ulterior motives. A decent relationship with Bonn has been and could continue to be of help with the modernisation of Soviet industry, quite apart from its importance for safeguarding the western border of the Soviet bloc on the River Elbe.

In urging President Reagan to open talks for arms control, Herr Schmidt therefore seems to have argued that Mr Brezhnev was likely to be the best opposite number that the West could find in Moscow. Any successor or replacement might prove to be a good deal less flexible.

On the other hand, the realities of military power being what they are, Herr Schmidt cannot risk being separated from his—and western Europe's—most powerful ally, the U.S.

Should a shift of emphasis be occurring, it is happening not so much in Germany, in spite of heated argument in both coalition parties, as, for instance, in the Netherlands. The new Dutch Government, once it is formed, may refuse the new nuclear missiles, and could take with it the Belgians, whose position has been equivocal under a series of shaky governments.

These are symptoms of a softening up that can be detected not only within Nato, but also in the Soviet bloc. Poland is the obvious case in point. On humanitarian grounds, as well on those of political self-interest, the West would not profit if a harder line were to emerge from the Kremlin. The attacks on Herr Schmidt must, therefore, be taken as a serious warning

Strains

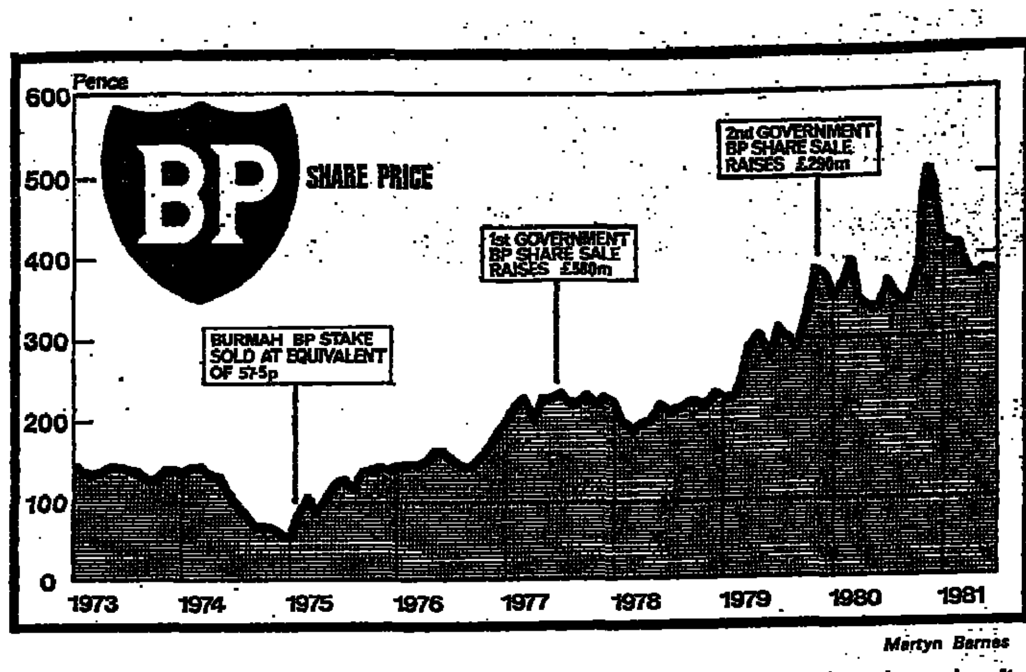
Neither can the West overlook the fact that concrete proposals which have come from Moscow on the subject of arms control have been one-sided in the extreme. Since the Soviet Army has already deployed a new generation of intermediate range weapons in eastern Europe, the freeze which Mr Brezhnev has proposed would freeze western inferiority. The same applies to the line the Russians have taken in talks for the control of conventional armaments. That is an argument for extreme caution—not one for refusing to talk.

BURMAH COMES TO COURT

A £1bn claim on the Bank

By Barry Riley

Tomorrow sees the start of one of the most spectacular commercial cases to come before the High Court. Burmah Oil is claiming that the Bank of England must return some 311m shares in BP which it bought for £179m in 1975. Now these shares are valued at over £1bn and a Burmah victory would be a bitter pill for the Governor to swallow.



Martyn Barnes

DID THE Bank of England take "unfair and unconscionable" advantage of Burmah Oil in January 1975? Will the Bank be forced to compensate Burmah, involving a payment which could run to over £1bn?

The answers to these questions should become clearer during the next few weeks, as the evidence is aired in what promises to become one of the most spectacular legal cases of its kind. For not only are the amounts at stake very large, but the dispute centres upon the behaviour of top officials at the Bank of England and the Treasury in the middle of the financial crisis of 1974 and 1975.

Tomorrow sees the opening in the High Court in London of the hearing of Burmah's formal claim for the return of some 311m shares in British Petroleum bought by the Bank of England for £179m (the equivalent of 57½p a share) and now valued by the stock market at almost £1.2bn.

Indirectly the British Government has already realised huge profits from this transaction, for in 1977 it sold 270m BP shares for £590m and in 1979 another 80m shares to raise £290m. Despite this it still retains a stake of 46 per cent in BP, compared with the 48 per cent held before the Burmah Oil transaction in 1975.

For several years, however, the ex-Burmah shares have been legally blocked in the hands of the Bank of England, and the Government has only been able to sell shares which have been held by the Treasury, long predating the 1975 purchase.

Now there will be a full investigation in court into Burmah's claims that the transfer of the BP stock to the Bank on or about January 23, 1975, was, in legal jargon, unconscionable, inequitable and unreasonable; and that the Bank obtained an improper advantage through its role as a mortgagee.

The financial crisis at Burmah Oil arose because of an extremely unfortunate coincidence of events, which aggravated the loss of control by an expansionist management over important parts of the business.

Burmah had used its huge stake in BP, a fifth of the company, to back the borrowings from Chase Manhattan Bank and Orion Bank needed for the $480m purchase of the Signal oil and gas companies in North America early in 1974. At the same time, however, the emerging world energy crisis was sending its tanker operations spiralling into huge and unexpected losses.

What Burmah had never reckoned on was that the BP share price would collapse during 1974 from over 130p (adjusted for a subsequent share split) to a low point equivalent to 50p or so. As Burmah's end-December 1974 balance sheet date loomed the danger increased that the company would be in breach of an important loan stock trust deed.

Worse, the Chase and Orion loans — on which the covenants had already been renegotiated — were protected by cross-default clauses which could be triggered by any breach of the loan stock deed. So between Christmas and New Year Burmah was plunged into a series of desperate negotiations to prevent imminent financial collapse. The saviour it turned to was the Bank of England.

Burmah's version of what happened then is set out in its lengthy statement of claim. The Bank of England has filed a defence which casts only a slightly different light on events, but which comprehensively denies the validity of Burmah's demands for legal restitution.

A profit-sharing arrangement was reasonable

In particular the Bank denies that there was any inequality of bargaining power between it and Burmah, or that it took advantage of Burmah's financial predicament. It does not accept that the sale of the BP stock was at an undervalue.

There were two different packages of rescue measures for Burmah. The first, made public late on New Year's Eve 1974, provided for loan guarantees and other assistance from the Bank of England. In return Burmah accepted the principle of 51 per cent public participation in the Ninian and Thistle fields of the North Sea, in which it had important interests.

It also agreed to hand over its BP stake to the Bank as security. The Bank would have the right of realisation, but Burmah made it clear in a statement made the next day that the holding "has not been taken over by the Government or the Bank of England."

In the next three weeks, however, the Government's attitude became much tougher. Burmah's financial problems were investigated further, and the Bank began to insist that Burmah would have to sell the BP holding outright to the Bank, even though the then chairman of Burmah, Mr Hamish Lumsden, was bound by repeated assurances to the shareholders of Burmah that the BP stake would not be sold without the formal consent of shareholders in a general meeting.

At that stage, Burmah and its advisers assumed that any sale would be at the then market price and that Burmah would share in any profit made by the Bank on resale. The Bank admits that Sir Jasper Hollom, then Deputy Governor, told Burmah that a profit sharing arrangement would be reasonable.

But on January 22 1975, the bombshell burst. The Governor of the Bank, Mr Gordon Richardson, and the Deputy Governor met Burmah and disclosed that the Government had decided that the price for the BP stake would be 230p a share (in the old unsplit form). Moreover the Government was not prepared to accept any profit sharing formula.

The Bank of England admits that at the meeting the Governor and Deputy Governor remained of the view that the suggestion of a profit-sharing arrangement was reasonable. They had done what they could to represent this view to the Government, and would not object to Burmah having direct discussions with the Paymaster General, Mr Edmund Dell, who was handling the matter for the Government.

This hint of disagreement between the Bank and the Government, and the possibility that the Bank was overruled by the Treasury, is central to Burmah's case. Mr. Dell is claimed by Burmah to have remarked on the afternoon of January 22 that if Burmah did not like the deal it could go elsewhere. But Burmah says that at that late stage it had no alternative, except liquidation.

A bizarre aspect of the affair is that Sir Jasper suggested that the price of 230p was a fair one in the light of the share price "high" of 256p for 1974 shown in the Financial Times editions of January 21 and 22. But this price was wrong because of a printing error. The true 1974 high was 590p as shown in all other issues of the FT.

So Burmah agreed to the second rescue package, which became public knowledge on January 23. Already on that day the BP share price had reached 268p and was rising rapidly, along with the rest of the stock market.

And next month the Government released proposals for North Sea participation and petroleum revenue tax which greatly improved the outlook for oil shares. By the end of February, less than six weeks after the transfer of the BP holding, the Bank was already showing a book profit of £144m—a gain of some 80 per cent.

The huge profit which the Government netted on the "rescue" of Burmah Oil brought an increasing wave of criticism. Soon a noisy and effective ginger group of small Burmah shareholders was formed. It had a big pool of resentment to draw on for Burmah was one of Britain's most widely held shares.

A shadow of the force it might have been

There was considerable comment on the roughness of the justice handed out to Burmah, in contrast to the kid glove approach by the Bank of England to the walking wounded in the financial sector after the 1974 property and secondary banking crash. The 160,000 or so mostly small shareholders in Burmah were investors precisely because it was thought to be a sound, safe long term holding and not a financial speculation.

Burmah has, of course, regained financial health under the able guidance of Sir Alastair Down, the former BP director recruited to become chairman in January, 1975. But with a current market capitalisation of around £220m it is inevitably only a shadow of the force it might have been had it been able to hold on to the BP stake.

The Labour Government consistently maintained the line that Burmah got into difficulties of its own making, and had no grounds to complain about the treatment it received. Shareholders' grievances should have been directed against the former directors, not the Government. Ministers asked whether Burmah's, shareholders would have been agitating to bear part of a loss if there had been one.

Leading Conservatives often expressed sympathy for Burmah's case when in Opposition. But since assuming power in 1979 they have fallen back on the line that justice must take its course. And it is ironic that Mr. Denis Thatcher, the Prime Minister's husband, was planning director of Burmah at the time of the financial crisis, but he was not on the main Board of the company.

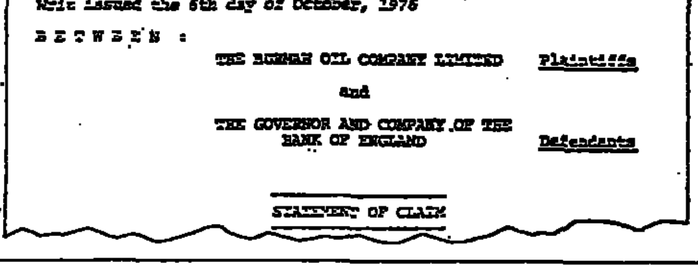
Whatever happens in the High Court in the next few weeks, it is likely to be several more years before the Burmah affair is finally settled. Either side is expected to take an adverse judgment to appeal, right up to the House of Lords.

And there are some in the Burmah camp who fear that not even victory in the House of Lords would finally secure compensation for shareholders. For there is an uncomfortable precedent in a lengthy legal battle between Burmah and the Government which last from 1946 to 1964.

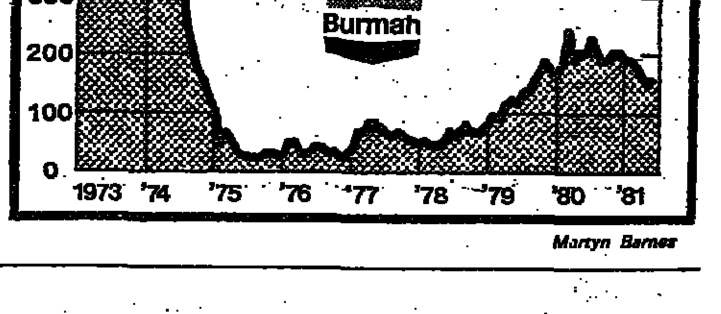
That dispute was over compensation claimed by the company in respect of installations in Burma which it was forced to blow up on British Government orders as part of the scorched earth policy ahead of the advancing Japanese in the spring of 1942.

Burmah's eventual victory in the House of Lords in 1964 proved ephemeral. During 1965 the War Damage Act was passed by Parliament and retroactively denied Buramh the compensation it had won.

Burmah may well not win this time. But if it does, the total compensation—including restoration of the BP stock, accrued dividends and damages—could be of the order of £1.25bn assuming that the BP share price stays near the present level. For a Government struggling to hold down the public sector borrowing requirement that would be a very bitter pill to swallow.


IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
GROUP B
1976 B. No. 6745
Writ issued the 6th day of October, 1976
BETWEEN :
THE BURMAH OIL COMPANY LIMITED Plaintiffs
and
THE GOVERNOR AND COMPANY OF THE BANK OF ENGLAND Defendants
STATEMENT OF CLAIM

Burmah chairman, Sir Alastair Down. On the left is the writ against the Bank



Martyn Barnes

MEN AND MATTERS

Filling the generation gap

Battersea Power Station, that temple of energy which bestrides the South Bank like a giant table fallen legs-upward from some celestial kitchen, is soon to crank out its last kilowatt. Save, the conservationist pressure-group, reckons that day will come in 1983. The Central Electricity Generating Board says it is too early to say with any precision, but certainly in the "shorter-term."

So what then? Even though the fourth great Battersea chimney was only completed in 1955, and the "A," or western, half of the power station shut down a mere 20 years later, it is impossible to imagine that stretch of the River Thames without its industrial monolith. The power station was given a grade two listing by Environment Secretary Michael Heseltine in October 1980, so that the building should be safe from outright demolition at least until all avenues for preserving it economically have been explored. It is also the policy of the Central Electricity Generating Board to dispose of surplus power station sites intact, leaving the purchaser with the option of demolishing or converting.

Battersea, with its 475-foot turbine halls and 25m cubic feet of space, is a little large for most people's idea of a private dwelling, however distinctive. It comes with 15 acres of land in a central if rather bleak part of London.

In a report published today, Save details what is considers to be not a definitive proposal, but one sufficiently detailed to be useful in stimulating developers to think along the right lines. Save wants Battersea turned into a leisure centre, encompassing an athletics arena, sports club, squash courts, museum, hotel, with an office-cum-shopping block.

Such a development would, says Save, be in keeping with the recreational tradition of an area which was home to the 18th century Vauxhall Gardens, and more recently to the Battersea Funfair. In arriving at its conclusion, the group remarks that the power station is "far too large to become an industrial museum—the most obvious suggestion for an alternative use. What is needed is a commercially viable mixture of uses which will attract the investment necessary to finance purchase, repair, conversion and continuing maintenance."

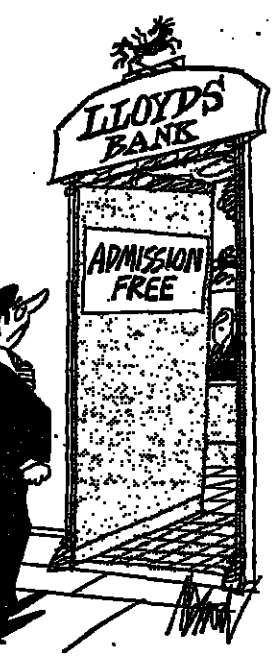
The building could already use a facelift estimated in 1980 at £700,000. But demolition, argues Save, would cost several times that.

Battersea is, according to architectural historian Gavin Stamp, essentially the work of two men. James Theo Halliday, a Manchester architect, did the original designs, and the interiors. Sir Giles Gilbert Scott, who designed not only Liverpool Cathedral but also the GPO telephone box, was brought in later to tidy up Halliday's elevations and contribute the Worcestershire brick cladding.

And while Scott's exterior is imposing enough, Halliday's innards sound no less splendid, in a more elaborate way. Think of the bathroom which one could make out of The Control Room, its "walls lined with Ribbon Napoleon marble and skirtings of black Belgian marble, and an illuminated ceiling of jazzy pattern." With, to heat the water three turbines of 69,000 kW, and one of 105,000 kW, "set in an impressive space articulated by giant stylised *antae*, faced in faience."

Urbane guerrillas

It is difficult to imagine two people less likely to support a band of self-styled "revolutionaries" than Sir Geoffrey Howe and Enoch Powell. Yet both stood atop the intellectual barricades on Friday at a luncheon to celebrate 25 years of the Institute of Economic Affairs, the think-tank of the radical right. Greetings were received from absent comrades Friedrich von Hayek and Milton Friedman. And with IEA General Director Ralph Harris—not the Australian singer—now elevated to a life peerage as Lord Harris of High Cross, the event had the air of marking the triumph of a new establishment.



Yet beneath the celebrations there are clearly doubts—witnessed by the question mark which concludes the title of this week's *Festschrift*, The Emerging Consensus . . ? Many of the IEA's authors remain very doubtful about how far the present Government is prepared to go in implementing the Institute's free-market principles—a concern voiced in a number of articles in a recent issue of the Institute's Journal of Economic Affairs. For market economists, as much as Marxists, *la lotta continua.*

Modest profit

Toasts will be drunk in pink champagne on the terrace of the House of Commons this week to celebrate the success of "No Sex Please—We're British," now the world's longest-running comedy, and chalking up its first ten years.

"I chose the venue because it was suitably British," explains producer John Gale, leaving in the air the more controversial element of the play's title. Which started life, incidentally, as "The Secret Sex Life of a Sub-Branch Bank Manager." Gale loved the play, hated the title, and had authors Antony Marriott and Alistair Foot rattle through 40 possible monickers over the phone before settling on a winner.

Gale started his 35 years in the theatre as an actor, before turning to production. His other hits have included Boeing, Boeing and Middle-Aged Spread.

Box office receipts for No Sex Please have so far topped £4m and any angel investing £1,000 in the play ten years ago would have rather better than a halo to show for it now—more like a chaste £25,000.

Burning question

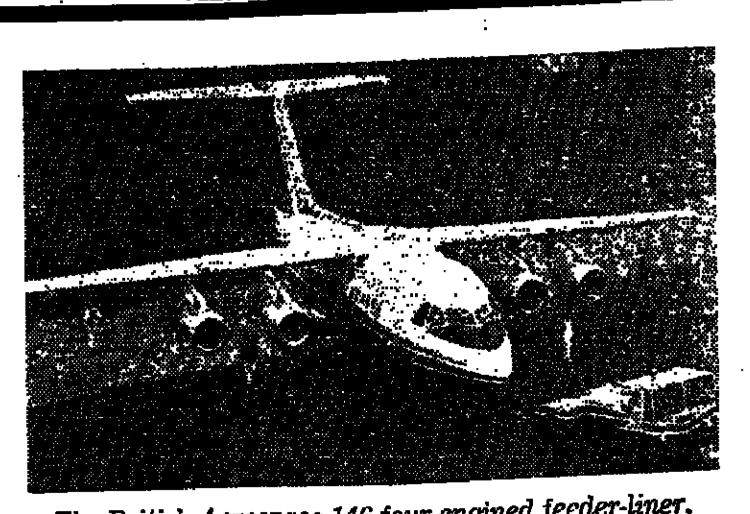
Tobacco company John Player is looking rather ashen-faced at the results of its Great Sporting Quiz, which graces the back of cigar packets. No less than 36 of the answers given by the company are wrong and there are plans to apologise to baffled competitors with a series of advertisements. John Player says the traditional panel of experts drew up the questions, but much reference book information proved inaccurate.

Most embarrassingly of all, smokers hoping to win a sports car were asked to pick out the 1979 winners of the John Player Cricket Sunday League, sponsored by the company. Was it Essex, Kent, Leicestershire or Gloucestershire? Well, Somerset, actually.

Observer

FINANCIAL TIMES SURVEY
Monday June 1 1981

AEROSPACE



The British Aerospace 146 four-engined feeder-liner, due to fly later this summer

Activity in the world's aerospace industries remains at a high level, with strong demand for both civil and military aircraft, engines, guided missiles and spacecraft. For the 1980s, the outlook is optimistic, with a big inflow of orders for airliners expected when the recession ends, and much military business stemming from the strong defence postures being maintained world-wide.

CONTENTS

Industry rides out hard times

By Michael Donne

Aerospace Correspondent

THE WORLD'S aerospace industries go to this year's Paris International Air Show with full order books. They have been able to ride the recession so far, on the back of a substantial volume of new civil and military business placed before the downturn in the Western world's economies occurred.

Their long-term confidence in a continued high level of business through the 1980s is based on two factors. First, they are counting on a rapid end to the recession in 1981-82, resulting in a return to a level of air passenger and cargo traffic growth that will reverse the present declining fortunes of many airlines, especially in the U.S., and encourage them to place orders for a wide variety of new civil airliners of all kinds.

Secondly, the aerospace and associated electronics and equipment industries are looking for a number of major new follow-on military programmes to keep their factories busy in the late 1980s and into the 1990s, for which the detailed decisions and programme planning must get under way within the next year or two, so long is the gestation period of any new military aircraft venture.

In the civil aircraft field, most manufacturers believe that once the recession is over the trend through the 1980s will be upwards, with perhaps a doubling of available seat-miles throughout the Western world by 1990. In the view of Boeing, the biggest jet airliner manufacturer in the world, this is likely to create a demand for close to 4,700 new jets, in addition to the 2,000 or so that have been ordered already over the past two and a half years, worth about $122bn.

Of this total, Boeing believes that about $44bn will be spent on replacing existing ageing and increasingly fuel-inefficient fleets, with the biggest share of the money, about $78bn being spent to meet the demands of passenger and cargo traffic growth. It bases this belief on the fact that out of the current world jetliner fleet of about 5,800 aircraft, with an average age of 9.2 years per aircraft, more than half, or about 3,400 aircraft, are at least nine years of age, and of those more than 2,100 are over 13 years of age.

Too noisy

By far the majority of these aircraft are now either unacceptably noisy, or are becoming increasingly uneconomic in fuel usage, or both, and will need replacing by the middle of the decade, if not before.

Boeing's belief in a return to traffic growth is based on the facts that even while the recession has been in progress, there has been a developing pent-up demand for air travel that will need to be met.

Few manufacturers, if any, would disagree with these broad views, although estimates of what they may mean in terms of numbers of aircraft to be sold through the 1980s may show marginal variations.

One result of this is that most of the major manufacturers are showing increasing interest in developing new types of jet airliners for various markets, the most significant being the short-range 150-seater replacement for many of the ageing twin-engined One-Elevens, DC-9s and three-engined Boeing 727s and Tridents now in service.

Four major manufacturers are already planning to enter this particular struggle, which promises to be one of the toughest yet seen in the world civil aircraft market.

They are Airbus Industrie in Western Europe, with its A-320 design: McDonnell Douglas of the U.S. and Fokker of Holland, who have joined to develop the MDF-100; and Boeing itself, which is working on a "7 Dash 7" design. Much more of these designs is likely to be heard at the forthcoming air show, although it may be some time yet before any of them emerge from the "paper aeroplane" stage.

Apart from this short-range field, several other new aeroplanes are now under development which have yet to even fly, let alone enter service. They include the medium-range Airbus Industrie A-310 200-seater; its rival, Boeing's new 757; and the latter's larger, 250-seat 767, which is largely in competition with the Airbus A-300 that is already in service.

Indeed, the battle between Airbus Industrie and Boeing has become the most significant aspect of the current world airliner marketing scene, with Airbus snatching many markets that Boeing had been confident it would win.

Promising

In the UK itself, there are some promising new programmes already under way, apart from the British share of the A-300 and A-310 programmes, and any share it may get of a new A-320 150-seater.

These include the BAe 146 short-range 80-100 seat feeder-liner, which rolled out from its Hatfield production line recently, and is due to fly later this summer, and the new Short 360 36-seat feeder-liner, now under development in Belfast for the rapidly expanding "commuter airliner" market, especially in the U.S.

In the military field, while there is substantial activity on a wide range of major military aircraft programmes, such as the Tornado multi-role combat aircraft now in full production by the UK, West Germany and Italy, the British Aerospace light Hawk trainer and combat aircraft, and such U.S. combat types as the McDonnell Douglas F-15 Eagle and the General Dynamics F-16, there is an emerging need for several new types.

In the UK, there is the need for an early decision on either the procurement of the U.S. McDonnell Douglas AV-8B Advanced Harrier, or development of the indigenous UK Mark 5 Harrier, to meet the need for a replacement of existing Harrier jump-jets. In helicopters, a Government decision is needed also on the development of the big EH-101 jointly by Westland and Italy's Agusta to replace the Sea King in anti-submarine warfare.

It is hoped in the UK aerospace industry that decisions in favour of these programmes will emerge from the current review of defence spending now being undertaken by the Ministry of Defence, the results of which are due to be announced this summer, before the parliamentary recess.

In Western Europe, a replacement for the Anglo-French Jaguar jet strike-trainer in the RAF and French Air Force is emerging, while the West Germans also need a replacement for their Phantoms. Efforts have been made to develop an internationally collaborative venture on a European Combat Aircraft (ECA) but these have stalled for the time being, owing to lack of enthusiasm on the part of the French—who have their own new Mirage 2000—and lack of cash on the part of the West Germans—a problem that also troubles the UK defence establishment. Currently, work on some private venture Light Combat Aircraft (LCA) designs is being undertaken by British Aerospace in conjunction with major companies in the associated UK electronics and equipment industries, with the hope that eventually one or another of these may come to fruition as a Government-supported programme. Another new light fighter venture, the AMX, is under way in Italy, with the support of the Brazilians, and if this proves successful that consortium may even be widened to include other countries in Western Europe and elsewhere in the world.

In the U.S., work is being undertaken to find the best design for new trainers for the U.S. Air Force and Navy, while a new tactical combat aircraft for the USAF for the mid-1990s has already begun to attract considerable interest among the major manufacturers, including Boeing, General Dynamics, Grumman, McDonnell Douglas, Northrop, and Rockwell International.

In the UK, particular concern is being voiced by the associated electronics, avionics and equipment manufacturers on the need for new civil and military programmes to keep those companies busy through to the end of this century and beyond.

There is now keen competition in the avionics and equipment sectors for such business as is available, and many of the companies have become increasingly international in their outlook and their hunt for orders.

In the civil field, these companies see in the projected 150-seater airliner the last major chance for the UK to win a major share of the burgeoning short-range market this century.

New engine

A similar feeling is apparent in the aero-engine field, where Rolls-Royce, while doing good business with the RB-211 in all its versions, needs soon formally to launch the new RJ-500 engine, which it is undertaking with the Japanese aero-engine industry, if it is to win a share of the new 150-seater airliner business.

The need to grasp new opportunities is also apparent in the guided weapons and space fields. There are fears that the Government's current review of priorities in defence spending may result in some cuts in missile and other weapons programmes, such as in the torpedo field.

A decision from the Ministry of Defence on a new military defence communications satellite system, that would open big international opportunities for UK space equipment manufacturers, is also pending.

One major factor behind all these underlying pressures in the UK and Western Europe for action soon by governments on new civil and military aircraft, aero-engine, space and guided weapons fields is that costs continue to rise inexorably. This is likely to limit the number of new ventures that any one country, or even a group of countries, will be able to afford. As a result, competition for the right to develop such projects as will be available will intensify in the years ahead. Another by-product of this is likely to be an intensification of the principle of international collaboration.

Even Boeing, which is already spending heavily on new jetliner programmes of its own, is not averse to the idea of international partners—it has the support of Aeritalia, of Italy, and of Japan, for example, in the 767 programme, and it is prepared to consider overseas partners on any new "7 Dash 7" programme it may eventually launch.

The smaller aerospace industries, outside the UK, the U.S. and Western Europe, are happy to join such international ventures.

They are in the fortunate position of having what the Western aerospace industries want—money, and factory capacity as well as manpower.

In summary, the world's aerospace industries are undeniably busy, and are likely to remain so for much of the 1980s. But many companies are already looking ahead to the run-down of some programmes in the mid-to-late 1980s, and they believe that the time to start considering new ventures is now, to carry them through to the end of this century and beyond.

Healthy market predicted for the rest of the century

CIVIL AIRCRAFT

MICHAEL DONNE

ESTIMATES by the major civil airliner manufacturers of the future volume of sales vary in detail, but all broadly agree that throughout the rest of this century there is likely to be a substantial market for new airliners of all kinds.

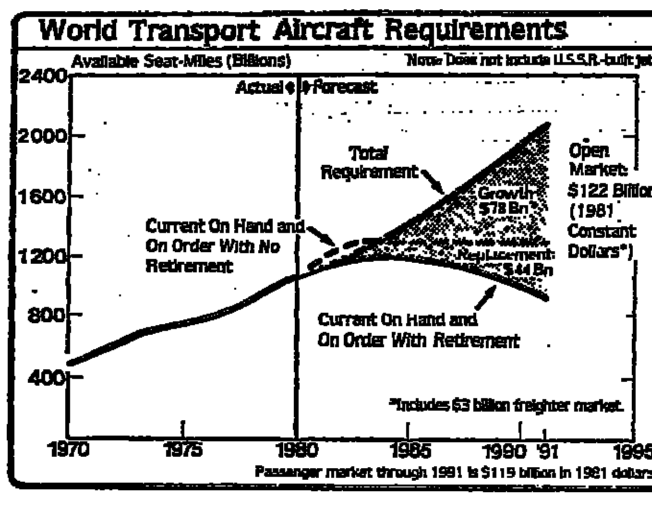
Airbus Industrie—the European consortium now engaged on the A-300 250-seat and smaller A-310, 200-seat Airbuses—believes that in the next 20 years, there will be a total market for around 6,200 jet airliners in the short-to-medium range category, worth about $250bn.

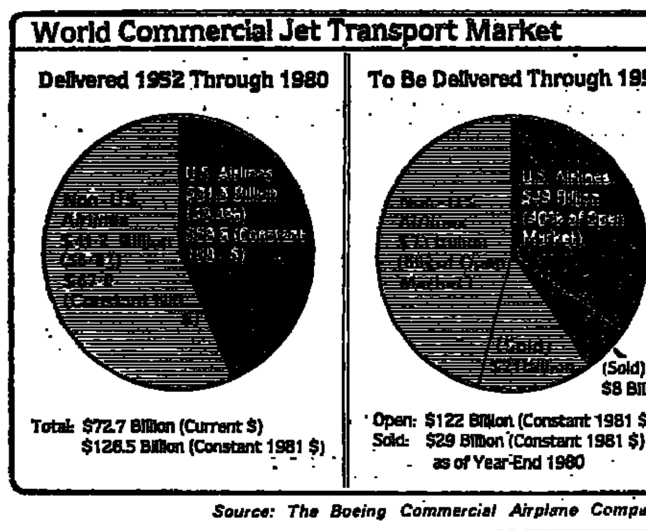
Of these, about 3,800 will be aircraft of the A-300/A-310 type, and about 2,400 will be of the smaller 150-seater type, such as the A-320, a design which has not yet been formally launched.

Boeing, still the biggest jet airliner manufacturer in the world (with over 4,560 jet airliners sold to date), takes a more conservative view. Its latest market predictions suggest that, in addition to the $29bn of airliners on the order books throughout the free world awaiting production and delivery (representing close to 2,000 airliners of all kinds), there is a market still waiting to be won worth around another $122bn *up to* 1991 (*in constant* 1981 dollars), representing some 4,690 jets of all kinds.

British Aerospace's estimates suggest that from now to the end of the century, there is likely to be a market throughout the free world of about 8,500 aircraft of all types up to the biggest Jumbo jet airliners, worth perhaps $300bn.

All these estimates can only be regarded as the broadest of guides to likely trends in world airliner sales, and are not precise predictions by the manufacturers of their own potential sales. The figures are of interest only in that they do appear to show a remarkable agreement among manufacturers as to the strength of the market over the next 20 years.





Source: The Boeing Commercial Airplane Company

Traffic growth

The size of the market stems from two factors. One is a continued demand for new airliners to replace existing ageing, fuel-inefficient fleets—the replacement market. The other is a likely upsurge in demand for aircraft to meet traffic growth. Most airline analysts believe that, once the current recession in the Western world is over, there will be a return to traffic expansion. Possible annual growth rates of up to 7 or 8 per cent are not seen as unrealistic through the mid-1980s, although most observers believe it will be lower, at perhaps around 5 per cent.

Even so, this expansion will be sufficient to generate a substantial demand for new aircraft. Boeing believes that out of the $122bn new sales forecast up to 1991, about $44bn will be accounted for by replacement purchasing, and $78bn will be due to traffic growth.

Further analysing its figures, Boeing suggests that of the $122bn, about $73bn will be in sales to non-U.S. airlines, and about $49bn sales to American operators. Of the $29bn of jets already sold or awaiting manufacture and delivery, about $8bn is in the U.S. airline market and the rest outside the U.S.

It is to meet this kind of demand that all the major manufacturers are heavily engaged in the development of new airliners, all the way from the small, light commuter and feeder liners up to the stretched 747 Jumbos.

Boeing is by far the biggest investor in new programmes, spending well over $2.5bn in the development of the new semi-wide-bodied 220-seat 767 and the smaller, narrow-bodied 200-seater 757, together with the new 135-seat Series 300 version of the Boeing 737. In addition to the new ventures, Boeing is continuing production of both its 727 short-to-medium range jet airliner, and its existing 737, as well as its big 747 Jumbo.

The latter, of which over 570 have been ordered and more than 500 delivered, is still selling well, and Boeing is now offering it in an extended upper deck version, seating up to 496 passengers. Moreover, Boeing has designs on the drawing board that could take the 747 into further "stretches" and bigger payloads in future, some of them involving the development of a new wing. This would give the aircraft a bigger range, with a bigger fuel tank, but it would also have the merit of reducing drag and improving fuel consumption.

The day of the 700-seater may not be just round the corner, but it is a technological possibility that Boeing is ready to turn into reality whenever sufficient airline customers say they want it, and are prepared to buy it.

With over 1,800 of its 727s sold to date, making it the world's best selling jet airliner, Boeing foresees the 727 eventually being replaced partly by the new 757 (with airlines already using the 727 moving up into a bigger aeroplane), and partly by a new aircraft with about 150 seats, which would be a more direct replacement for the 727.

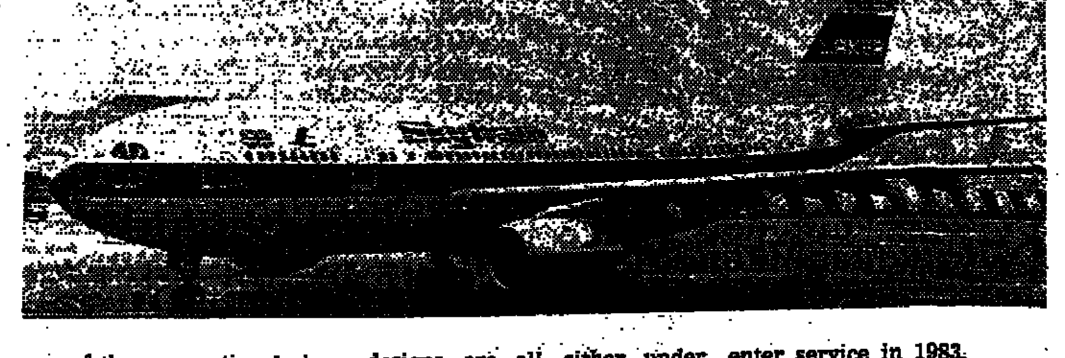
To this end, Boeing has for some time been studying a 150-seater short-to-medium range airliner, called the 7 Dash 7, with two engines mounted under the wings. It plans to unveil details of this programme at the Paris International Air Show, with a model of the proposed design on the Boeing stand in the static exhibition.

Limited

So far, the 7 Dash 7 venture has not been formally launched, although substantial design work has been done, with up to 200 engineers involved over the past year or so. Thus far, investment in it has been limited. But if the project does go ahead—and this seems likely over the next year or two, to meet an in-service requirement from the airlines of about 1986-87 onwards—the ultimate investment would be at least $1bn and probably closer to $1.5bn.

On top of its other current commitments, Boeing is therefore being cautious before extending itself further, but it is firmly in the field for such an aeroplane.

Laker Airways, the highly successful low-fare Skytrain operator, is now flying the European A-300 Airbus and has more on order



This 150-seater market is *likely to be the most significant* new development in the world airliner scene in the immediate future. Already, McDonnell Douglas of the U.S., which has for some years been hovering around this area with its original Advanced Technology Medium Range transport design, which became successively the DC-XX and then the DC-11, has now teamed with Fokker of Holland to promote a design called the MDF-100.

At the same time, Airbus Industrie is studying the possibility of developing a new A-320, also a 150-seater, but will have to carry its partners and its governments (French, British, West German and Spanish) with it if it is to push ahead with an investment on a new project of well over $1bn.

What does seem certain is that, sooner or later, one or another of these 150-seater designs will emerge. Whether all three—Boeing 7 Dash 7, Airbus A-320 and MDF-100—emerge remains to be seen. If they do, the market will be very competitive, not to say crowded, and there will be fewer pickings for everyone.

What seems most likely in the immediate future is that all three interested parties will seek collaborative partners in other parts of the world, notably Australia and Japan, and that over a period one or more of the prospective designs will be seen to emerge as the *most promising. One of them* may well fall by the wayside as the pace hots up, or there may yet be further amalgamations, with Airbus, Boeing or McDonnell Douglas-Fokker linking with one or another of its current competitors.

The other major development in the civil aircraft market is the growth of interest in the smaller, 30-seat commuter or feeder-liner aircraft, to meet an emerging demand, especially in the U.S. for this type of short-range aeroplane.

Competition

Several major manufacturers have already entered the competition, all with twin-turboprop engined designs. In Sweden, Saab has linked with Fairchild of the U.S. to undertake the joint Saab-Fairchild 340. In Brazil, Embraer, which has already made a great success of the 20-seat Bandeirante, is developing the larger 30-seat Brasilia, while in Canada, de Havilland Aircraft is building the new Dash 8. In the UK, Short Brothers of Belfast has already created a niche for the 330 airliner, which is well ahead of its rivals in the 30-seat market, already being delivered to airlines worldwide, and it is now developing the new, larger 36 seat 360, which will fly early in June. These designs are all either under development, or in production, but there are plans for others, including ideas from Aeritalia of Italy and Aerospatiale of France, while CASA of Spain and Nurtanio of Indonesia are working on the 34-38 seat CN-235.

Here too the market is likely to become very crowded, but again it is likely to be a big market, likely to grow steadily through the 1980s. Embraer, for example, estimates a potential market of over 800 commuter type airliners through the 1980s, while Short Brothers put the likely sales figure higher. Although competition will be fierce, it is clear that the commuter airliner has come to stay, and while its use at present is largely confined to the very short-haul role in the U.S., UK and other areas of substantial air transport development, there is growing interest in such aircraft in other parts of the world.

One other major new airliner development programme that is likely to be much in evidence during the immediate future is the British Aerospace 146, a feeder-liner and bus-stop type jet, with four quiet and fuel-efficient engines, designed to carry 80 to 100 passengers, in two versions. This aircraft, the prototype of which rolled out from the Hatfield, Hertfordshire, factory on May 20, is due to fly later this summer, and to enter service in 1983.

Currently, there are few *orders for it*, but British Aerospace believes that once the aircraft is in the air, demonstrating its quietness and fuel efficiency, it will generate a market of its own. Undoubtedly, there is a requirement for a jet airliner in this 80 to 100 seat category to replace some of the ageing turbo-propeller types, such as the British Viscount and the Dutch Fokker F-28 Fellowship in the mid to late 1980s.

But British Aerospace also believes that a new market will emerge for airliners larger than the new generation 30-seat "commuter" airliners but not so big as the short-haul Boeing 737, which carries up to 130 (or more in the new Series 300 version).

A major sales campaign is under way on the 146, and it is hoped that orders will start to flow in during the second half of this year, quickening as the recession fades and economic recovery occurs. The 146 is aimed at the smaller airlines worldwide, and no-one expects big individual orders of 20 to 30 aircraft at a time. The sales will be in small packets of two or three aircraft at a time, but with many hundreds of small airlines as potential customers throughout the world, the eventual demand for the 146 could be substantial.

Longer aircraft life and extended production runs expected

MILITARY MARKET

MICHAEL DONNE

DEMAND FOR military aircraft, which has been high in recent years, is expected to remain so through the rest of this century.

British Aerospace's military aircraft division estimates that the total value of military combat and trainer aircraft likely to be sold between now and the end of the century throughout the Western world will amount to nearly $500bn—significantly larger than the sums that will be spent on civil jet-airliners over the same period.

Of this total, it is estimated that about $200bn will be accounted for by domestic procurement of military aircraft inside the U.S., and that of the remaining $300bn, about $100bn will be procurement by the NATO nations. The rest will come from countries in the Third World, seeking to build up their air forces, generally with the smaller light combat types.

It is considered certain that the rising costs and complexities of modern military aircraft will have two main effects—longer aircraft life in service as countries seek to get the best value for money, and longer production runs as manufacturers seek to cover their own costs and earn profits by selling as many aircraft as they can of each basic type. Another by-product of the rising cost and complexity will be the introduction of fewer new types of aircraft, especially of the bigger, more sophisticated and thus more expensive models.

Updating

The aim is likely to be for manufacturers to offer—and countries to show more interest in—derivatives of existing types that progressively update original aircraft purchases in terms of fire-power and other performance capabilities. The result will probably be that fewer completely new types will be offered, and much greater attention will be paid to improving the weapons and sensors that aircraft carry, rather than to spending unnecessarily large sums on completely new flying weapons platforms.

Because of the long period involved in the design, development and initial production of military aircraft, many of those that will be in service to the end of this century are already in production, or at least under development. These include the Anglo-West German-Italian Tornado multi-role combat aircraft, of which it is eventually intended to build 809. About 400 have already been firmly authorised.

Another major new aircraft on which considerable emphasis is being placed is the AV-8B Advanced Harrier, under development in the U.S. by McDonnell Douglas for the Marine Corps, with an eventual purchase of 336 aircraft planned. In the 1981-82 defence budget, the U.S. has already allocated more than $888m for the continued research development and initial production of 12 AV-8Bs. Further funding for full-scale quantity production is expected in later budgets.

The UK is considering whether to buy a substantial number of the AV-8Bs for use by the RAF, to update the ageing Harrier force. The probable RAF buy would be in the region of 60-100 aircraft. But an alternative possibility is the development in the UK itself of another version of the aircraft, the GR Mark 5(K). Studies by the RAF have indicated that the AV-8B would suit its purposes in the Central Region of Nato with a minimum of modifications. But because of the considerable work sharing that would accrue to the UK under purchase of the AV-8B, which in value would more than offset the cost to the UK of building its own new version of the aircraft, the emphasis in Whitehall (and, indeed, in British Aerospace) appears to be moving in favour of the AV-8B.

This is one of a number of major equipment procurement decisions that the Ministry of Defence has to take in the current major review of defence costs and equipment and is expected later this summer, before the Parliamentary recess.

The business that would flow from any UK participation in the AV-8B with an RAF purchase is substantial. The UK would build one-third of all the airframes for AV-8Bs for the U.S. Air Force, and all the airframes for the two-seat trainer versions of the aircraft. In addition, the UK would build all the airframes for the RAF aircraft, and would also get a percentage of all AV-8Bs sold into third markets (other than the UK and the USAF). In addition, there would be substantial engine work on the Rolls-Royce Pegasus engine for the AV-8B, with Rolls-Royce undertaking up to 75 per cent and Pratt and Whitney of the U.S. the rest.

Another benefit would be a share for the UK in the development of advanced versions of the AV-8B, and in particular a supersonic vertical take-off and landing derivative of that aircraft. Called the AV-8 SX, such an aircraft would probably be required from the mid-1990s, with work starting around the mid-1980s. Some research on the airframe has been undertaken by British Aerospace and McDonnell Douglas and on the engine by Rolls-Royce.

At this stage, another major UK military aircraft re-equipment decision pending for some time—a replacement for the Jaguar jet strike-trainer aircraft by the late 1980s—appears to have foundered. At one stage attempts were being made to establish an international European consortium including British, West German and French companies and air forces to collaborate on a new European Combat Aircraft or ECA, to replace the Jaguars in the French and UK air forces and the Phantoms in the West German Luftwaffe.

The preliminary examination foundered because of differences of time-scale for the replacement aircraft, and entrenched attitudes on the part of the French, who remain more interested in developing their own Mirage 2000 combat aircraft than in participating in any ECA venture.

British Aerospace has however continued its own project studies for a Light Combat Aircraft (called P-106) together with a number of major equipment and avionics companies in the UK (including Marconi, Feranti and Smiths' Industries) with a view to producing such an aircraft if the UK Government and others overseas, notably Sweden and India, can be persuaded to buy. This "LCA" is in two versions, one that would be less sophisticated and less expensive with one engine, and the other a more advanced aircraft, with two engines. The designs are going ahead on BAe's and its associates' own money, and so far there is no Government cash involved.

Significant

This development could be highly significant for if no full-scale European Combat Aircraft emerges, the RAF might have to turn to the U.S. to meet its requirement for a Jaguar jet strike-trainer replacement, with the McDonnell Douglas F-18 a possibility. Such a solution would be most unpopular in the UK industry, especially among the equipment and avionics companies. They see in the current military aircraft procurement situation the seeds of a substantial erosion of their design, development and production capabilities if no indigenous UK military aircraft programme is undertaken in the wake of the Tornado programme, and especially to meet the Jaguar replacement requirement.

Inside the U.S., work is under way on the next generation of advanced tactical fighters, for service in the early 1990s. The U.S. Air Force plans to start development work this autumn, and expects to issue the customary "requests for proposals" to the aerospace industry early in 1982, seeking conceptual studies on the new aircraft. It is expected that at least nine major aircraft manufacturers, including Boeing, General Dynamics, Grumman, McDonnell Douglas, Northrop and Rockwell International, will submit plans.

The aim will be to thin the initial contenders to a smaller total of two or three companies by 1985, who would be asked to build prototypes for a competive fly-off in 1987, at which time a winner would be declared and awarded a substantial production contract. The aircraft would be expected to enter service by about 1993-94. The USAF has allocated funds of over $300m for these plans through to 1985-86, but beyond that substantial additional funds would be needed, amounting to several billion dollars, to provide the aircraft—several hundreds initially—that the U.S. Air Force would need. This is likely to be one of the few new U.S. advanced military combat aircraft contracts awarded in that country over the next few years, and it will be hotly contested by the manufacturers.

Apart from new combat aircraft, the U.S. is planning to develop trainers for both the U.S. Air Force and the Navy, with several hundreds of each type likely to be ordered. These aircraft competitions are notable in that many of the European aerospace companies, including British Aerospace, have joined forces with U.S. manufacturers to bid for the contracts. Thus a substantial volume of international collaboration seems likely no matter which combination of companies wins in each competition.

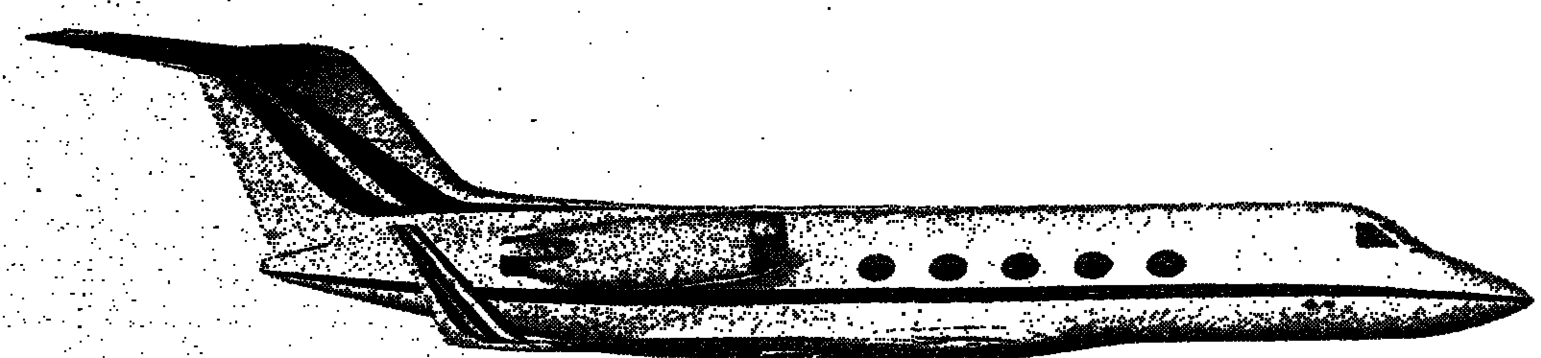
One new military aircraft that seems likely in the later 1980s to win big markets, especially in the Third World, is a new light strike aircraft undertaken jointly by the Italian (Aeritalia and Macchi) and Brazilian (Embraer) aircraft industries. Called the AMX this will be a single-engined light fighter, using the Rolls-Royce Spey military engine already used in the RAF Phantoms. The initial development cost of $600m is being split, with Italy spending $400m and Brazil $200m. There will be two assembly lines, one in each country. Each country will divide the design and manufacture of specific parts for the aircraft, each country shipping its parts to the two final assembly lines.

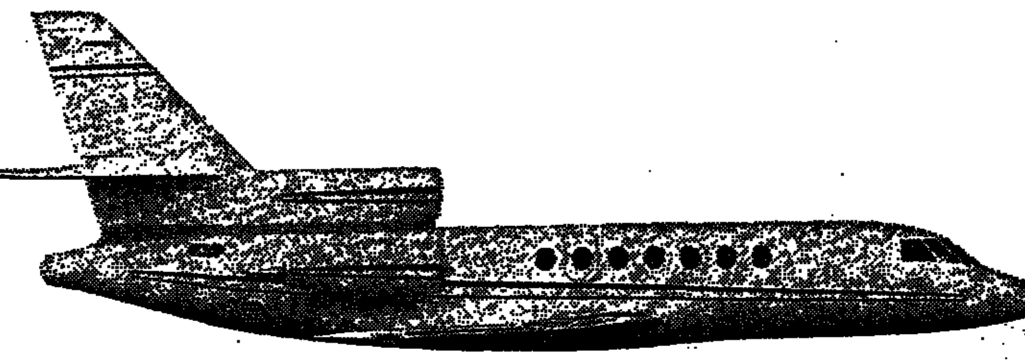
Initially, 300 aircraft are planned, 200 for Italy and 100 for Brazil, but already there is considerable interest in the aircraft from several Third World countries who want a low-cost jet strike aircraft and who cannot afford the higher prices charged by the U.S., UK and French manufacturers. An eventual sale of about 1,000 of the AMX type is foreseen. A big team of Italian and Brazilian aeronautical engineers is working on the final design, and on the precise details of the work-sharing that will be involved on the project.

هكذا من الأصل

Last year, half a million of the world's decision makers got on the wrong plane.

The airlines





Corporate jets

More to the point, they had every reason for doing so.

Because, until now, executives who found themselves taking thirty or forty long-distance business trips a year had but two options.

The first was the airlines. The subway system of the sky, so to speak.

The second was the private corporate jet. For executives with the muscle tone to sit cramped for hours, the patience to keep stopping for fuel and inordinate amounts of money to burn.

The airlines: Even as they raise their fares, they lower our expectations.

The airlines have two major drawbacks: The routes they don't fly, and the routes they do fly.

CAB statistics covering the two-year period since the onset of deregulation show that less profitable routes are being dropped at the alarming rate of *over 42 cities per year.*

On routes they do fly, rising air fares are overtaken only by rising columns of red ink, making further price hikes more than likely.

And let's not forget the traffic jams to the heavily congested airports, the long lines at the ticket counter and the gate, the indifferent flight attendants, the curious food, the movie they show while you're trying to work, and, of course, the luggage that flies north even as you fly south.

What you can forget is the most important requirement of high-level business travel in the twentieth century.

Random access. The ability of an executive to fly anywhere at a moment's notice. Be it to sign a merger, beat a deadline, handle a crisis or negotiate a treaty.

There is, in fact, only one conceivable way for a corporation to give its top executives random access to jet transportation.

Give them random access to a jet.

And considering the aircraft available until now, the reluctance of most corporations to do so is almost forgivable.

The corporate jet: If man was meant to fly, why did they make it so expensive?

The forerunners of corporate aircraft like the Falcon 50 and the Gulfstream III were designed fifteen and twenty years ago respectively, when a gallon of jet fuel cost less than a dime.

Which explains why the designers were so unstinting in the amount of fuel they allowed their machines to feed on.

But then, in the sixties, you could get away with things like that.

The problem is, the basic designs of the airplanes and the built-in need for large amounts of fuel that go with them have been perpetuated in their newest offspring.

So that flying the Gulfstream III across the Atlantic and back, for example, requires the purchase of no less than 5,230 gallons of jet fuel.

(The Gulfstream III is also every bit as noisy as its predecessors. Nearly three times as loud as the Challenger on takeoff, twice as loud on approach for landing and over four times as loud on sideline, which is precisely where noise has the most impact on the surrounding community.)

What executives clearly require, then, are corporate jets that strike an entirely new balance between bigness and comfort on the one hand and uncompromising frugality on the other.

And that can hardly arise from a concept of air travel based on the ease and abundance of the sixties.

It has to come from a concept of air travel born of the gas lines and fuel shortages and price hikes of the seventies.

The Canadair Challenger: It will fly you more economically and in greater comfort than any other intercontinental corporate jet in the world.

Remember the 5,230 gallons of fuel you need to fly the Gulfstream III across the Atlantic? The Challenger will make the same trip on 4,055 gallons.

Overall, the Canadair Challenger averages a 22% lower rate of fuel consumption per mile than a Gulfstream III, virtually the same rate of fuel consumption per mile as the far smaller Falcon 50 and, hard as it may be to believe, a 3% lower rate of fuel consumption per mile than the tiny, short-range Falcon 20F.

Yet the Challenger is bigger than all of them in the one dimension most critical to passenger comfort and a realistic working environment: width.

Measured at the floor line, both the Canadair Challenger and the bigger, even longer-range Canadair Challenger E are roughly 30% wider than the Gulfstream III and 48% wider than the Falcon 50.

And speaking of range.

The IFR range of the Canadair Challenger makes it one of the few corporate jets in existence that can cross the Pacific with one stop.

Or fly from New York to the Middle East with one stop.

Or fly from Honolulu to Denver non-stop.

Or from Washington to London non-stop.

For the first time in history, private intercontinental business travel is a practical, economical reality.

We're sorry it took so long.

For more information on the Challenger, call James B. Taylor, President of Canadair Inc., at (203) 226-1581. Or write Canadair Inc., 274 Riverside Avenue, Westport, CT 06880.

In the Mideast business world, TAG Aeronautics Ltd. is the exclusive distributor and representative for Challenger sales and support. For further information, contact Adel A. Oubari, Vice President, TAG Aeronautics Ltd., 14 Rue Charles Bonnet, 1211 Geneva 12, Switzerland. Phone: (022) 46 17 17. Telex: 289 084.

canadair challenger

Major builders will have their expertise tested

ENGINES
MICHAEL DONNE

DESPITE the recession, business for the world's engine makers remains strong, and they foresee even better times ahead.

Of the world market of about 8,500 new civil jet and turbo-prop airliners of all types, worth about $300bn (in current prices) between now and the end of this century, it is estimated that the engine manufacturers will collect between them about one-third, or a market worth around $100bn. This will cover engines for airliners from the biggest 747 Jumbo jets down to small executive transports.

In addition, the engine makers can expect to gather about one-third of the total military aircraft market of about $500bn, or about $150bn, so that the total world aero-engine market over the next 20 years is not likely to be less than $250bn of business, excluding the value of spares and in-service support.

Stringent needs

Meeting these requirements will fully test the technological expertise and production skills of the major engine makers—Rolls-Royce, General Electric and Pratt and Whitney who are the "big three" in the business, supported by the range of smaller manufacturers, including Snecma and Turbomeca of France; Avco Lycoming; Garrett and Detroit Diesel Allison and and Teledyne of the U.S.; Motoren und Turbinen Union of West Germany and Volvo, of Sweden. For, in addition to the need to meet the wide range of power-plants that will be required in substantial numbers, there are increasingly stringent technological requirements being imposed in the search for ever improved fuel consumption—as a result of continually soaring fuel costs—and for much lower noise levels.

A new generation of engines is now under development for the next series of jet airliners.

In the UK, Rolls-Royce is developing the Dash 535C and 535-E4 versions of the RB-211 engine of about 37,500 lbs thrust for the new Boeing 757 twin-engined jet airliner, while Pratt and Whitney is developing its new PW-2037 engine, of around the same thrust — also for the 757.

General Electric was originally in this market with its CF6-32 engine, but in view of the big orders gained by both Rolls-Royce and Pratt and Whitney for 757 propulsion, it has withdrawn, and is concentrating instead on a new "Energy Efficient Engine" of probably lower power, for another new generation of airliners that is likely to emerge within the next two years or so, the so-called "150-seater."

The latter market is expected to be very large, perhaps as many as 2,000 aircraft through to the end of the century, since this aircraft will lie between the existing 130-seat types of aircraft, such as the Boeing 737-300, and the bigger 200-seat Boeing 757 and the larger Boeing 767.

The 150-seater will be, in effect, a true replacement for the existing Boeing 727 and Douglas DC-9s, which currently carry around that number of passengers, especially in high density versions, but which are ageing.

By the time the new 150-seaters come to enter service, around 1986-87, there will be a substantial market ripe for plucking by the manufacturers involved.

For this new market, Rolls-Royce has already begun to develop a new power-plant, the RJ-500, in conjunction with the three major Japanese aero-engine companies—Ishikawajima Harima Heavy Industries, Kawasaki Heavy Industries and Mitsubishi Heavy Industries—which will be of about 25,000 lbs thrust, and Pratt and Whitney has said that it will also develop a new engine in the "PW" series, probably the PW-2025, of about the same thrust. General Electric, in addition to its "Energy Efficient Engine," is already collaborating with Snecma of France in the development of the CFM-56 engine in a number of versions, and is likely to develop a CFM-56 Dash 4 version of about 25,000 lbs thrust to meet the needs of the 150-seater market.

These engines are also likely to be considered suitable for the new version of the Boeing 737, the Series 300, which has already been launched by Boeing, using the CFM-56 Dash 3 engine. One of the contenders in the 150-seater battle, Airbus Industrie, is considering the possibility of offering a new proposed A-320 aircraft in two versions, one of 130 seats to compete with the 737-300, and another of 150-160 seats, to compete in the 727/DC-9 replacement market, and it will study the use of RJ-500s, PW-2025s and CFM-56s in both series of aircraft.

Struggle continues

At the upper end of the civil aircraft scale, the struggle between the "big three" engine builders for shares of the steadily expanding Boeing 747 Jumbo jet market continues.

With more than 500 Jumbo jets already ordered, and no competitor of any kind in sight, it is now certain that Boeing has the 747 market to itself for decades to come, certainly to the end of this century and well into the next.

Boeing plans steadily to expand the size of the 747 to meet growing airline needs for larger aircraft—as a means of carrying more passengers to offset soaring fuel costs—and already ideas for aircraft capable of lifting up to 750 passengers at a time are on the drawing boards at Everett, near Seattle.

These will require ever larger power-plants, and so Rolls-Royce, Pratt and Whitney and General Electric are already studying ways of raising the thrusts of their RB-211, JT-9D and CF6 series respectively up to at least 60,000 lbs. Already, for example, Pratt and Whitney is offering its JT-9D-7R4H1 at 56,000 lbs for the Series 600 version of the European Airbus, while General Electric has the 55,000 lbs CF6-80C for the Airbus and the 747. Rolls-Royce has produced the RB-211-524-D4 at 53,000 lbs for the 747. All these manufacturers say that, subject to customer demand, they can take these engines to higher thrusts if required.

At the lower end of the scale, an increasing demand is emerging for new, quieter, highly fuel-efficient turbo-propeller engines to power the new generation of "commuter airliners" under development in the U.S., Canada, Brazil and Western Europe (in France, Italy, Spain and Sweden).

Leading the field in this sector of the market is Pratt and Whitney Aircraft of Canada, which has for many years produced a major series of turbo-propeller engines for a wide range of light transport aircraft.

Now, it is developing a new turbo-prop, the PW-117, which is planned as the first of a series of engines of up to 2,000 shaft horsepower. The first aircraft to use this new engine will include the de Havilland Canada Dash 8 commuter liner, and the new Brasilia commuter liner being developed by Embraer of Brazil.

In the military field, the demand for engines is bound to remain strong, as Western and Third World air forces continue to re-equip through the rest of this century with a wide range of combat types, ranging from the big Tornado multi-role combat aircraft down to light strike/trainers such as the British Aerospace Hawk and the Franco-German (Breguet-Dornier) Alpha-Jet.

Derivatives

Work on the Anglo-West German-Italian RB-199 for the Tornado will keep Rolls-Royce, Motoren und Turbinen Union and Fiat Aviazione—who have formed a collaborative company, Turbo-Union, to undertake this work—busy through much of the 1980s, while they are also studying derivatives of this engine as possible contenders for new types of combat aircraft that are likely to be required in the 1990s and beyond.

In the U.S., both Pratt and Whitney and General Electric are also studying new military engines to meet emerging requirements. Pratt and Whitney has already begun development on two new engines, the PW-1120 of 20,000 lbs thrust, intended for foreign and export fighter aircraft, and the PW-1130 of 30,000 lbs thrust intended to provide a more powerful alternative to the existing F-100 engine (used in the current F-15 fighters) for the next generation of fighters now being studied by the U.S. Air Force.

Sector expected to take a third of total market

EQUIPMENT
LYNTON McLAIN

AT LEAST one-third of the U.S.$800bn of total expenditure which is expected to be spent on military and civil aircraft between now and the turn of the century is likely to be accounted for by equipment.

The popular view of the aerospace industry takes little account of the equipment manufacturers. Airframe and engine manufacturers dominate debate about the future progress of aerospace manufacture, but behind increasingly advanced aircraft projects, such as the Anglo-German-Italian Tornado programme and the new generation of Airbus airliners, is an entire industry devoted to supplying complex equipment.

The equipment includes advanced radar, with cockpit displays often in full colour, communications and engine monitoring equipment all backed by a rising degree of automation. Advanced equipment has taken on an increasingly important role in the design and performance of aircraft over recent years but there are now fears in the equipment manufacturing sector that without a substantial and firm commitment, by governments and prospective buyers of new aircraft, to new programmes, deep-rooted changes may be unavoidable in the equipment industry. Some companies are expected to face the difficult choice of whether to remain in the aerospace equipment field unless desperately needed new aircraft projects are launched soon.

At one time the amount of ancillary equipment carried by an aircraft was limited in quantity and versatility.

Now, however, the modern aircraft operates in a very different environment. Progress in engine design and manufacture and in the shape and performance of airframes has moved in step with the development of highly advanced equipment, much of it designed to take out human control of flying almost completely.

Equipment has been developed which largely automates the guidance and control of aircraft and in the military sector aircraft have become weapons platforms—computer controlled machines where the pilot is almost a passenger. Here the pilot takes on a supervisory role and crucial decisions about interception or attack are taken by on-board computers, often displaying vital data, for information only, in colour on internal television screens.

This increasing complexity has narrowed the field of industrial participants. Smaller companies have merged, or have been assimilated into larger national groups, of a scale which encourages ever-more complex innovation and design and so reduces the likelihood of smaller newcomers entering the field.

But just as the pilots of today have come to rely and depend on advanced electronic equipment, even for the smallest business jet aircraft, so too have the electronic and other equipment manufacturers come to rely on a steady flow of new aerospace projects. These are essential to keep design teams fully occupied and factories operating at economic capacities.

Crucial

In Britain, the arguments over where this steady stream of aerospace projects is to come from are reaching a new and crucial stage as the Cabinet starts its examination of ways of cutting UK expenditure on defence, just as major programmes, such as the Tornado aircraft, are entering service with no immediate sign of other replacement projects.

The backbone of recent aerospace equipment contracts for the electronics industry, the Anglo-German-Italian Tornado multi-role attack aircraft, illustrates well the complexity of the equipment and the command a relatively few large companies have over its supply.

The U.S. Texas Instruments company supplied the forward-looking radar; Britain's Ferranti company supplied the digital inertial navigation system and radar display and also the laser ranger and marked target receiver; Decca supplied the Doppler radar system; Smiths Industries supplied the head-up display system; Marconi Avionics, AEG and Selenia the television tabular display; Marconi Avionics and Aeritalia the autopilot and flight director system and Marconi Avionics and Selenia the terrain-following system.

British Aerospace is considering a range of designs as possible replacements for the Anglo-French Jaguar fighter bomber aircraft, including the AST 403, the P106 light combat aircraft and a possible European combat aircraft programme. One of these projects may be launched as a unilateral exercise by British Aerospace, possibly in partnership with overseas countries. Talks have already taken place with Sweden and India about possible collaboration.

The future of these design exercises is of the greatest possible interest to Britain and Europe's aerospace equipment manufacturers. They all need, as a matter of urgency, decisions taken by the airframe manufacturers, but more important by the national governments involved, if they are to avoid serious industrial difficulties arising out of the lack of continuity caused by the delay in concluding studies about the Jaguar replacement, to name just one project.

Britain is also near to making decisions about the type of vertical take-off fighter aircraft it needs to replace the Harrier. The choice is between the Mark V "big-wing" Harrier developed on the drawing board by BAe, and the AV-8B aircraft developed by McDonnell Douglas of the U.S.

The Electronic Engineering Association, with members from the aerospace electronic equipment manufacturers, joined the chorus of those now calling for an increase in home orders to maintain a viable industry. Dr. Peter Trier, president of the association, said last month at the EEA's annual dinner that Britain had to ensure that the high technology industries, such as the capital electronics sector were permitted to prosper. He said that "enormous resources have to be ploughed back into the industry" if it was to compete with the world on the next generation of equipment.

"If our industry is to continue to provide the bulk of equipment for our Services, and at the same time to export more defence equipment" — as the Prime Minister had urged at last year's Farnborough Dinner — "we need to do more to match our own military requirements to the export market," Dr Trier said. Last year the capital electronics goods sector in Britain increased its output by 15 per cent to £1,650m, including £522m of direct exports.

The Ministry of Defence in Britain was the largest single customer of the members of the association, reflecting the importance of defence work for Britain's electronic equipment suppliers. But the civil aircraft market is also an important outlet for advanced equipment, particularly at present when the Government's defence review has cooled down the immediate prospects for rapid increases in spending on military equipment.

Confident

Britain has just unveiled its first design of a new civil airliner for 18 years, the British Aerospace 146 feeder aircraft. BAe is confident that large potential sales are in prospect for the aircraft, and the first orders have already been announced. The equipment industry obviously welcomed the project, but is still hoping for further projects in the field of civil aviation.

In particular, equipment manufacturers are pressing for British Aerospace to become lead partner and manufacturer of the proposed new European Airbus, the A320 150 seat airliner. British Aerospace could become the company in the Airbus Industrie consortium to undertake the final assembly of the airliner.

This would certainly be welcomed by suppliers of aerospace equipment, but regardless of the country of final assembly, the decision most wanted by the equipment manufacturers is for the A320 to go ahead soon. A decision is expected to be made by Airbus Industrie later this year and since it is likely to be one of the last major civil aircraft projects to be undertaken by Europe's aircraft industry for the rest of this century, it is regarded as of unprecedented importance.

Without the A320, world airlines would probably have to turn to Boeing for its 7 Dash 7 or the McDonnell Douglas Fokker joint venture aircraft for an advanced technology 150 seat airliner. Success in world markets for either of the proposed U.S. designs without a competing A320 from Airbus Industrie would leave Europe's aircraft equipment makers with no new civil project to look forward to over the next 20 years.

New cargo airship ready for tests

A NEW era in the colourful history of lighter-than-air craft is expected to unfold this summer with the first test flight of the world's latest purpose-built cargo airship, the Skyship 500 from Airship Industries of the Isle of Man.

The craft was designed from the outset as a definitive demonstration vehicle to prove once and for all the technical feasibility and commercial viability of lighter-than-air craft. The Skyship 500 is 164 ft long, shaped like a conventional non-rigid blimp airship of second world war vintage, has helium as its sole source of lift and is designed to carry 2 tonnes of cargo.

Range and fuel efficiency performance figures are expected to be given at the time of the craft's first flight from the Royal Aircraft Establishment at Cardington, Bedfordshire, the traditional home of lighter-than-air craft development where the R101 airship was built.

The success or otherwise of the Skyship 500 airship is likely to prove to be a crucial milestone in the further development of airships, at least for the foreseeable future. Few companies in the conventional aerospace industries have abandoned heavier-than-air machines in favour of the uncertain returns from diversification into airship developments.

The result has been to concentrate the limited developments that are taking place in airship technology with a few enterprising companies, where enthusiasm and a belief in a bright future for airships count as important assets, in an aviation world sceptical of success in the design of airships.

Success for the prototype Skyship 500, however, would almost certainly result in an expansion of the effort, now confined to the drawing board, by Airship Industries to finalise the detailed design of a true workhorse from the lighter-than-air stable, the proposed R-150 cargo-carrying airship.

This is likely to be designed to carry a payload of 75 tonnes over ranges of up to 1,000 miles.

The impetus for the company to think in terms of such a substantial load-carrying airship has come as a result of potential orders for at least 10 such airships. Redcoat Cargo Airlines, a small cargo airline based near London, has agreed to buy four of the R-150 airships, with options on a possible further 10 craft.

In the U.S., the Federal Express all-freight airline has suggested to Airship Industries that it would order 10 of the airships provided that the design work shows that Airship Industries' predictions of performance and viability are realistic and that *the airship could be* a commercial success.

Clearly the R-150, if it can be made and made to work economically, could herald the start of a substantial reappraisal of airships as cargo-carrying vehicles. So far, however, Airship Industries has not done any *detailed design work on the* airship although such details as the type of turbo-prop engine have already been decided.

The first flight of the R-150 could be in 1985 with deliveries to Federal Express in the following year.

In the meantime, production work on the Skyship 500 airship is proceeding apace. Air Azure, of France, has made the non-rigid envelope, Vickers Slingsby in Yorkshire is putting the final touches to the gondola and the Porsche engines have been delivered from Germany.

The entire craft will be assembled at Cardington ready for the first flight in July. After trials and certification by the Civil Aviation Authority for airworthiness, the craft is to be leased to interested parties, including possibly the U.S. Coastguard for trials.

Airship Industries and its predecessor companies have had a chequered career. The Skyship 500 craft was designed as the successor to the AD-500 craft developed by another company, Aerospace Developments, which was taken over by Airship Developments. This company was in turn bought by Thermo-Skyships, the publicly quoted company which raised £1.4m on the stock market at the end of 1979.

The original idea from Thermo-Skyships, backed by European Ferries, was to combine the lighter-than-air characteristics of helium gas and hot air balloon technology in one saucer-shaped craft. This idea *has* now been dropped. Airship Industries, the new name for Thermo-Skyships, said it had done no research on "temperature control of gas" and the idea was still at the research and development stage.

Lynton McLain

Even more prosperous times ahead

HELICOPTERS

MICHAEL DONNE

THE WORLD'S helicopter manufacturing industries have been among the most active and successful sections of the world aerospace industry during recent years. They still are—and the major manufacturers are looking ahead to even more prosperous times in the 1980s.

World demand for helicopters in the decade from 1981-1990 is expected to amount to around 29,300 aircraft throughout the free world, worth an estimated \$29.2bn (in 1980 dollars) of which about 21,100 aircraft will be civil (worth about \$13.6bn) and some 8,200 military (worth about \$15.6bn).

If the value of spares is also taken into account, the total value of helicopter sales throughout the period can be doubled, so the total extent of helicopter business through the decade ahead is likely to be in the *region of \$60bn.*

The figures illustrate what has been happening in the helicopter business in the recent past, and what will happen in the future, with a marked swing in favour of the civil market, although the military requirements have been and will remain substantial.

Demands of oil

The growth of civil business has been spearheaded by increasing demand for helicopters to support the development of the offshore oil and gas industries, not only in the North Sea area of Europe, but also in Alaska, the Gulf of Mexico, the Southern Caribbean, in South-East Asia and now also off Newfoundland.

This demand has been for aircraft not only capable of providing executive transport, but also for the medium to heavy-lift of supplies of all kinds on a regular basis to support the rigs and platforms on a daily basis once production has begun.

For most of the past three decades, the helicopter derived from originally military types has reigned supreme, such as the Sikorsky S-61N, but the oil industry is now making increasing demands on the manufacturers for machines designed from the start for civil roles, with improved economics in terms of greater range and bigger payloads.

At the same time, the interest in helicopters for executive transport duties has also grown substantially, generating demand for aircraft of greater comfort and elegance in styling than is possible in military aircraft derivatives.

Moreover, there has also been a widening of the awareness of the versatility of this type of aircraft (with its ability to land and take-off near-vertically) in a large number of industries, which in turn has been creating a demand for helicopters, and this spectrum of uses is likely to continue to grow.

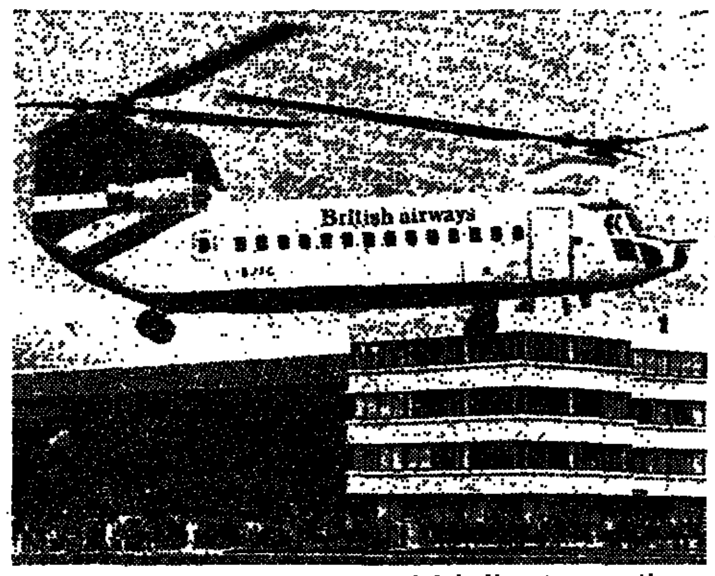
In the civil role, the basic duties of search and rescue and corporate-executive air transport are being supplemented by such tasks as aerial surveying and agriculture (including moving timber), building power lines across difficult terrain, and lifting heavy loads to the tops of tall buildings, as well as a wide range of coastguard, Customs and police surveillance and traffic control duties.

Still in its comparatively early stages is the demand for *very heavy lifting capability,* which has been attempted so far by only a few aircraft such as the Sikorsky Flying Crane and CH-53E Super Stallion types of vehicle.

This field is still largely the prerogative of the military aircraft, although civil derivatives of these are almost bound to emerge through the 1980s to meet emerging requirements from the construction, logging and oil exploration industries.

As a result of these civil demands, in recent years a new series of designs has emerged, ranging from the small Bell 222 eight-to-10 seat civil twin-turbine engined aircraft, through the Sikorsky S-76 twin-turbine engined aircraft and the bigger twin-rotor 44-seat Boeing 234—the commercial version of the famous military Chinook aircraft—while, from France, there are the new Ecureuil/Astar six-seat light general purpose aircraft, the twin-engined Ecureuil 2/Twinstar, the Super Puma medium transport and the Dauphin 2.

In the UK, Westland Helicopters, of Yeovil, is now developing the new W-30, a twin-turbine engined aircraft capable of seating up to 21 passengers—in a high-density version—for both civil and military use. Westland has laid down a batch of 20 W-30 helicopters on a speculative basis, but already British Airways Helicopters has ordered two, and may eventually buy as many as 25 of these aircraft.



The big Boeing 234 commercial helicopter, seating up to 44 passengers, is soon to enter service with British Airways Helicopters on North Sea operations

An analysis of the distribu*tion of potential* helicopter business by value over the coming decade shows that of the total market for new aircraft of \$29.2bn, about \$13.7bn worth will be in the U.S., about \$7bn in Western Europe and the rest —about \$8.5bn—in the rest of the free world.

Wide range

Of this, in turn, the U.S. total will be divided as to \$7.8bn civil and \$5.9bn military, with Western European civil business accounting for about \$2.4bn and military business \$4.6bn.

In the rest of the free world, the military business will also dominate, amounting to about *\$5.1bn.*

This indicates that, while in the U.S. the civil business is likely to be predominant, in the rest of the free world, while the civil business is undeniably expanding, it is still the military requirements that tend to govern the manufacturers' thoughts—although under the stimulus of competition they are beginning to pay much more attention to the civil side of the market—with some very good returns already being made there by such manufacturers as Aerospatiale of France.

On the military side, the use of helicopters encompasses such tasks as transport of men and supplies, search and rescue, liaison and other communications duties, anti-tank and anti-submarine warfare, artillery spotting and medical evacuation, and now also amphibious assault operations. The range of types available for military purposes is now very wide, and is being added to substantially, especially in the U.S.

The current free-world fleet of military helicopters stands at about 27,000 aircraft, out of a total current world fleet of about 41,000 rotary-winged aircraft, and the free world demand for new military aircraft is expected to amount to about 8,200 aircraft through the 1980s. Many of these are likely to be in the U.S., which is still the free world's biggest producer and user of civil and military helicopters, with the U.S. Army alone currently holding more than 9,000 helicopters in its inventory.

Among the new military types now under development are the Sikorsky UH-60A Blackhawk, designed to meet the U.S. Army's requirement for a Utility Tactical Transport Aircraft System (UTTAS), combining such roles as troop transport, medical evacuation, aerial surveillance on the battlefield, and missile gunship.

A naval variant, the Seahawk, is under development for anti-submarine warfare, anti-ship surveillance, search and rescue and other missions. Another major U.S. military helicopter development now under way is the Hughes AH-64 Advanced Attack Helicopter for the U.S. Army, which will eventually call for well over 500 aircraft. A production decision on this aircraft is expected later this year.

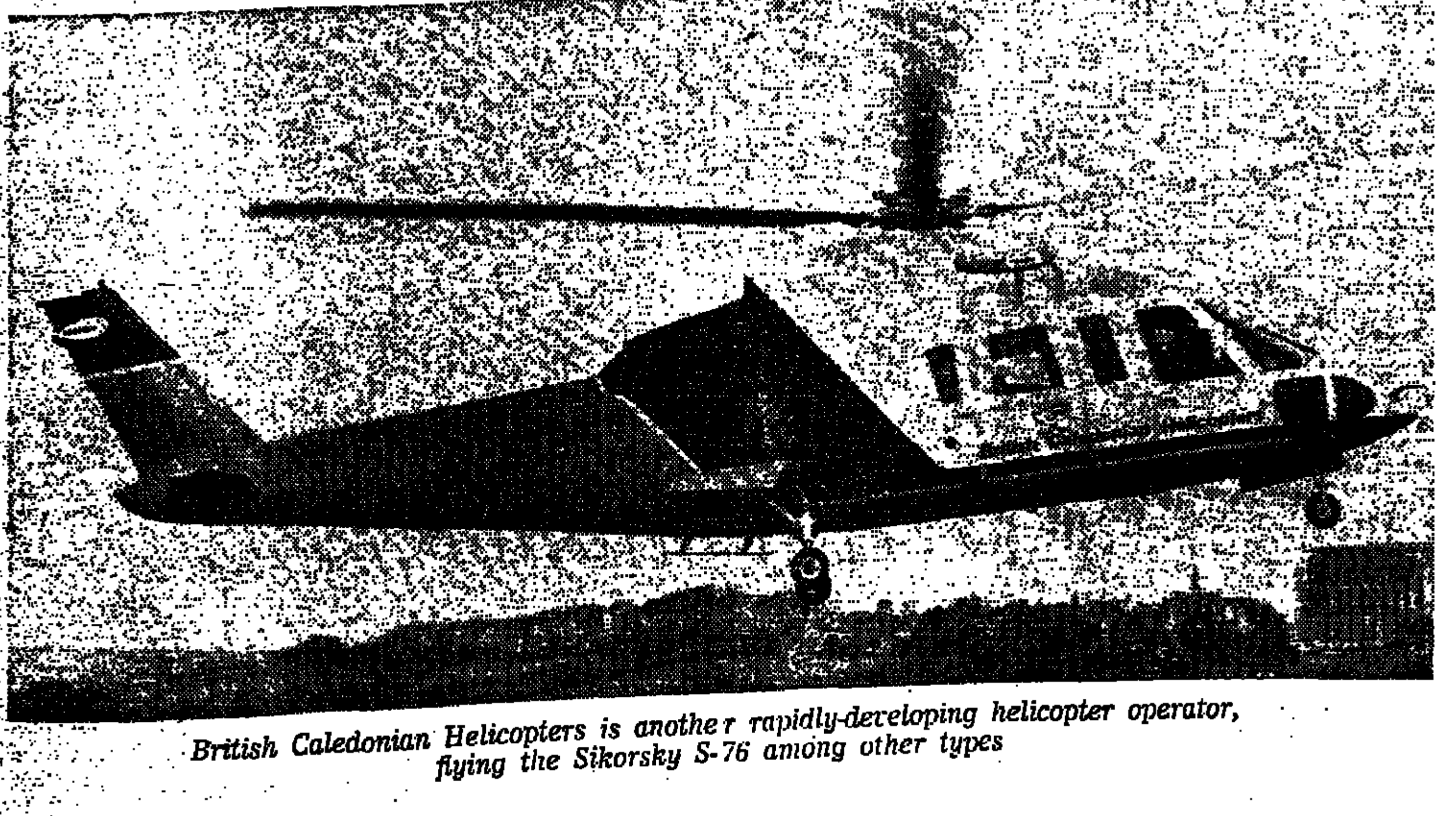
In Western Europe, the next major military helicopter development seems likely to be an internationally collaborative venture between Westland, of the UK, and Agusta, of Italy, on a replacement for the big Sea *King and the Italian ASH-3D* for anti-submarine warfare.

These two companies have set up a joint company, EH Industries, registered in the UK, to develop the EH-101, a design for a 25,000 lbs-30,000 lbs all-up-weight aircraft for both anti-submarine warfare and other roles.

Pressing ahead

So far, neither of the two governments has finally committed itself to this project and Westland and Agusta are pressing ahead with the work and they hope that eventually both France's Aerospatiale and West Germany's Messerschmitt-Bolkow-Blohm will join in.

Another major internationally-collaborative venture now under way in Western Europe is the Franco-German PAH-2 programme for an anti-tank helicopter, in which Aerospatiale and MBB are involved. The West German Army has a requirement for over 200 PAH-2s, and the French armed forces for over 100, so that a large market for this aircraft already seems assured.



British Caledonian Helicopters is another rapidly-developing helicopter operator, flying the Sikorsky S-76 among other types

Swift recovery hoped for after the recession

AIRLINES

MICHAEL DONNE

THE WORLD'S airlines are still passing through the trough of the recession, which has severely hit their revenues. Although there have been some signs of a recovery in recent weeks it is not likely that 1981 as a whole will show much improvement over 1980, when the world's major airlines collectively lost about $2.5bn.

Neverthless, there is considerable determination in the airline industry to survive this current difficulty, for there is a general belief that, once the recession is over, business will recover remarkably swiftly. There are few in the industry who do not believe that by the mid-1980s, traffic will be rising again, perhaps at a slower rate than in the period immediately prior to the recession.

In order to gear themselves for this recovery, many airlines are already ordering new equipment, trimming labour forces where necessary, and improving their individual marketing techniques.

To a large extent, the necessity to re-equip with improved aircraft has been forced upon the airlines by the fact that many of their existing aircraft are rapidly ageing, having been in service for more than 15 years, and are increasingly uneconomic as fuel prices continue to rise.

Even so, there is a substantial amount of new equipment being ordered to meet the anticipated expansion in traffic that will occur through the mid to late 1980s. From January 1, 1978, to the end of May this year, it is estimated that orders for more than 2,000 net jet airliners were placed in the free world. These orders would be worth about $60bn.

This is only about one quarter of the total market for new airliners of all kinds up to the end of this century estimated at about 8,500 and worth about $300bn at current prices. There is clearly a substantial market for new aircraft and a substantial re-equipment bill to be incurred by the airlines.

Although the re-equipment tide has slackened markedly over the past few months as the recession hit the bottom, there are orders being placed, and many airlines are studying their future needs. With the anticipated up-turn in traffic, there is likely to be a sharp increase in equipment spending by the airlines, to ensure that they are not left at a competitive disadvantage.

Variable

It is significant that the effects of the recession on the world airline industry has been markedly variable. It has been at its worst in the U.S., where the losses incurred by the major trunk airlines amounted to several hundred million dollars last year. For the first three months of this year, the Air Transport Association of America reports a continued depression, with scheduled airline traffic down 9.7 per cent compared with the first three months of 1980. Although some major airlines have reported improved financial results for the first quarter—Delta, for example, earned 28 per cent more at $27.9m while American earned $3.9m net against a loss of $41.9m a year earlier—the outlook is still gloomy for most others.

In Western Europe the situation has been bleak for some major airlines. British Airways is generally believed to have run into heavy losses in the financial year to March 31, although British Caledonian remained profitable last year.

On the whole, the recession in Europe seems to have been less severe than in the U.S.

In other parts of the world the effects have been much less shattering. On many routes in the Third World, where air transport has been comparatively newly discovered as an instrument of economic and foreign policy, traffic has been strong. It is significant that the International Air Transport Association, in its market forecasts for traffic growth in the period up to 1985, shows greater rates of expansion for regions in the Third World—such as the Middle East-Africa, the Middle East-Far East, and to the South-West Pacific and on the South Atlantic—than on the U.S.-Europe transatlantic route.

Overall, during 1980, all the airlines in the member-states of the International Civil Aviation Organisation — including the Soviet Union — collectively carried about 750m passengers on scheduled services. This was only 2.5 per cent more than in 1979, and a rate of growth well below the historical average of about 10 per cent experienced in the mid to late 1970s. What is important about this statistic is that it shows that while the growth rate slackened sharply, there was still some growth in the world air transport business.

Conditions have not yet reached the point where the airlines as a whole are carrying fewer passengers than before, although on some routes, such as the North Atlantic, traffic has declined. But, worldwide, the overall volume of traffic for the first five months of 1981 appears to be at least 2 to 3 per cent higher than in the comparable period of 1980, and there are hopes of this being sustained.

Where the trouble lies is that much of this traffic is unprofitable for the airlines, because a lot of it is being carried at cheap promotional rates at a time of soaring costs, especially of fuel.

The IATA has estimated that the Western world airlines' total fuel bill of just over $1.5bn in 1973-74, which had climbed to $4.64bn by 1978-79, was likely to have reached about $8.8bn in 1980, and to soar well above $10bn in 1981, and to rise thereafter through the 1980s. Fuel now costs more than 10 times what it did in 1973-74. At that time it represented only about 12 per cent of total airline operating costs, while now it accounts for more than 31 per cent. The average price of aviation fuel in 1981 is forecast at $1.40 a U.S. gallon, with further rises likely so that by the end of the 1980s, it could be in the region of $2.80 a gallon.

It is because of this soaring fuel cost that the airlines are obliged to get rid of many of their older jets, even though they may still have useful airframe lives. The airlines have to buy new-generation jets with engines giving substantially improved fuel consumption.

Consumer pressure

The other major problem confronting the world's airlines is the persistent pressure from consumer groups, and some governments, to reduce fares at a time of soaring costs. The airlines have done much over the past 20 years to bring down the costs of air travel, and especially in Western Europe and the U.S. it is remarkable how cheap it can be to fly long distances.

While it is undeniable that there are still many discrepancies in airlines' fares calculations that appear ridiculous—such as the ability to fly across the North Atlantic for less than on some longer journeys in Western Europe—nevertheless the airlines as a whole are still trying to bring down fares wherever they can. The British Airways Club/Tourist Class concept in Western Europe, involving the abolition of First Class, is a move in this direction, and many other airlines are seeking ways and means of improving the range of cheaper fares they can offer. In some cases, such as the British Caledonian and Laker bids for networks of cheap fares between the UK and the Continent, they are frustrated by the intransigence of continental governments.

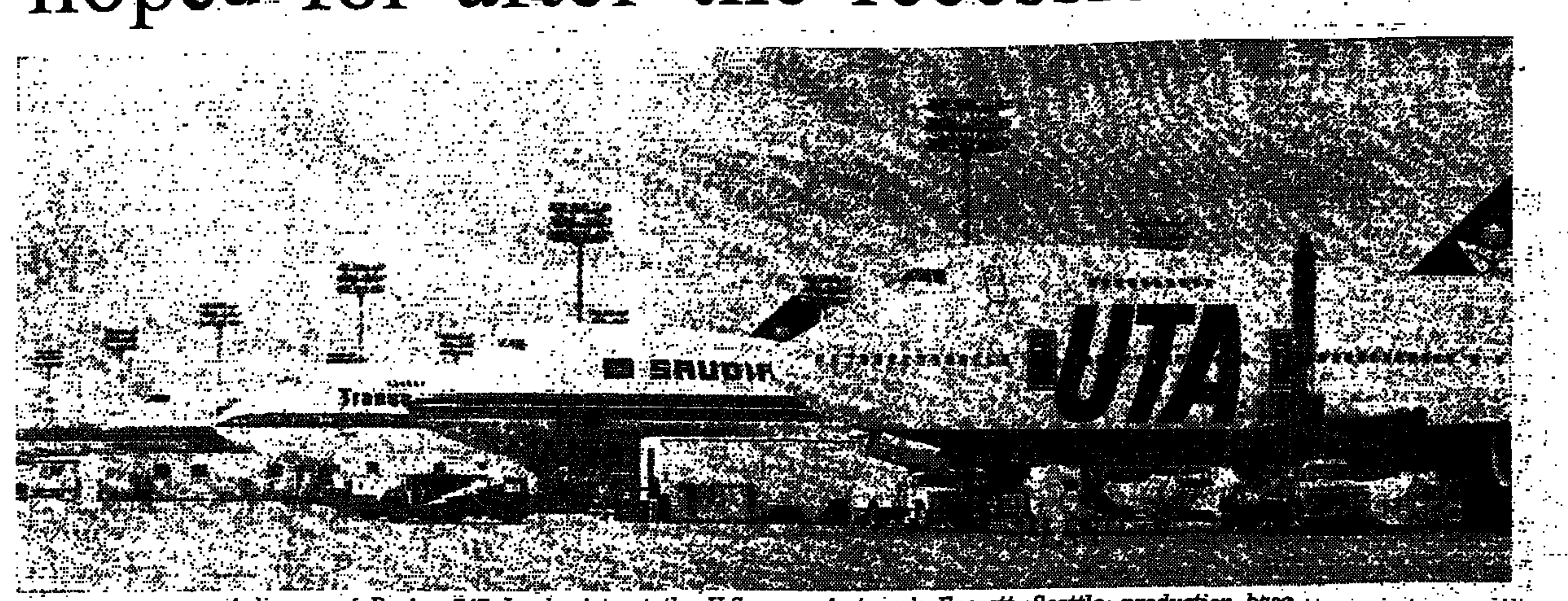
But it seems likely that despite the airlines' pleas of soaring costs, the consumer attacks on current pricing policies will continue.

One area where the attack seems certain to escalate in the near future is from the European Economic Commission in Brussels, which believes that the air transport industries of the Ten are covered by the Treaty of Rome, and its particular clauses governing competition.

The EEC is already moving to enforce the Treaty of Rome on the European airlines. If it should succeed in doing this—a debatable point in view of the great importance that individual governments place on their sovereignty over those airlines—it seems clear that there would have to be a wholesale reappraisal of the attitudes of those airlines to the present fares-fixing techniques. This might perhaps include the abolition of fares-fixing through the International Air Transport Association. Governments, too, would have to reconsider their own attitudes to their national airlines, perhaps abolishing the current system of bilateral fares-fixing and adopting a more open, competitive pricing system.

While many airlines in Western Europe tend to attack the concept of airline deregulation as it has been and still is practised in the U.S. by the Civil Aeronautics Board, there is little doubt that some measure of deregulation will eventually come in Western Europe.

What those airlines are seeking to do, by pressure on governments, is to ensure that the amount of deregulation is limited, and that its introduction is controlled. It is argued that, having survived one severe economic depression, it would be folly to damage the chances of economic revival by deliberately introducing another. The protagonists of deregulation, and in particular the increasingly vociferous consumer groups, argue that deregulation is essential for economic growth in the air transport industry through the 1980s, and that it can help the economic recovery rather than hinder it. The debate between these two schools of thought is likely to be one of the most strident in the air transport industry, particularly in Western Europe, in the years ahead.



A line-up of Boeing 747 Jumbo jets at the U.S. manufacturer's Everett, Seattle, production base, where the new Boeing 767s are also being built

Growth will continue but at a slower rate

AIRPORTS

LYNTON McLAIN

WORLD DEMAND for airport capacity is expected to continue to increase through the 1980s and 1990s up to the end of the century and beyond, although at rates of growth less spectacular than those of the mid-and late 1970s.

The October 1973 war in the Middle East caused a flurry of uncertainty in aviation circles about the likelihood of the previous steady growth of civil aviation continuing. The war led to the first of a series of unprecedentedly high increases in the price of crude oil. The impact on air travel, with its high proportion of operating costs attributable to fuel, was immediate. Demand fell, airlines were left with spare capacity and airports lost much of their bustle and business.

This downturn was shortlived. Airport authorities reported that within a year of the worst initial effects of the 1973 oil crisis, the passengers had returned. Airports filled up again as demand for air travel resumed its previous upward momentum.

Growth rates of 10 per cent a year were common in the later years of the 1970s. Skytrain opened the skies for cheap, competitive air travel and confidence returned to the air travel industry.

The cheaper fares and rising disposable incomes produced new passengers. Many had never flown before, many had never crossed the Atlantic, but behind these changing patterns in the West, new airlines from the Third World were steadily opening up distant countries.

The 10 per cent growth per year pattern looked set to continue until last year when a deep worldwide recession cut demand for airline capacity, and airports which previously had looked certain to be overcrowded were given a breathing space.

Conviction

Behind this slowdown, which world airlines are still experiencing, is a firm conviction that demand will accelerate again when the present cyclical recession bottoms out. Forecasters expect demand for air travel to resume a pattern of growth, with maximum rates of the order of 5 per cent a year in the immediate future.

The conviction that continuous growth is, for the foreseeable future, an inherent characteristic of air travel is behind the expression of confidence which the current and forecast large scale airport development represents.

Airport design and construction has not slowed to any great extent, and some of the largest and most advanced airports in the world actually opened over the past few months in the midst of the worst recession since the 1930s.

The largest was the U.S.$750m Hartsfield Atlanta International airport in Georgia. This spectacular airport development opened in September with a justifiable claim to have installed capacity greater than any other airport in the world. The Atlanta airport is capable of handling a record 55m passengers a year, but plans are in hand to boost this, as demand rises, to 75m passengers a year.

London's Heathrow Airport has a design capacity of 30m passengers a year.

The Hartsfield airport is perhaps the greatest expression of air authorities' confidence in the future of air travel. But elsewhere authorities plan to spend an estimated £50bn by the early 1990s on new airports, expansions at existing airports and on the ancillary equipment essential for safety and efficiency at modern airport complexes.

African interest

About half of the forecast spending is expected in North America, according to the International Civil Aviation Organisation's analysis of construction programmes. Europe is the second most important area for forecast airport expansion programmes, but Africa is expected to provide substantial work for civil engineering contractors and airport designers in the 1980s and 1990s.

Another area of rapid development is the Middle East which already has substantial airport capacity. One of the most impressive developments is in Saudi Arabia. Here, 15 miles north of Jeddah is the King Abdulaziz International Airport, a fine multi-purpose airport complex opened on April 12.

The airport is designed to handle 8.6m passengers a year by 1985, but includes features which few other airports in the world can lay claim to. It has its own mosque with curved roof sections and a modern version of a minaret, a feature which goes some way to explain the dual functions of the airport. The airport has been designed to enable Saudi Arabia to serve the Muslim pilgrims who travel to Mecca, and it is designed to aid in the economic development of the whole country.

The airport also has a tent city complex for housing Muslim pilgrims expected to use Jeddah as the air gateway to Mecca.

Air cargo facilities are included at the airport and are capable of handling 150,000 tonnes a year, perhaps the largest such facility in the Middle East.

Saudi Arabia also has plans for two other airports, at Riyadh and at Dhahran. The airport at Riyadh is expected to open in 1983 while the airport for Dhahran is still at the planning stage.

In Britain, Mr. John Biffen, the Trade Secretary has reiterated the Government's policy for meeting the growth in air transport demand. Government strategy has two strands. First, the Government is anxious to meet the growth in demand for air transport by encouraging the fullest use of regional airports away from London. Second, the Government intends to provide extra capacity, but only as traffic develops, which would be based on the existing airports at Heathrow, Gatwick and Stansted.

London and to a great extent much of the rest of the UK is also served by Luton Airport. This is run by the local authority and has developed into a prime base for air charter and holiday tour operations.

The Government has continued to support air services which enable passengers in the regions to fly from their local airport. But so far the Government has rejected a policy of seeking to divert passengers destined for, or coming from the south east of England, to other parts of Britain.

Forecasts for air traffic in Britain suggest that demand for air transport will continue to increase in the London and south east area beyond 1990. No new airports are to be built to meet this expected demand. Instead, the Government has given the go ahead for a fourth terminal at Heathrow Airport. This is under way and is designed to increase Heathrow Airport's current total maximum capacity of 30m passengers a year to 38m passengers a year, from April 1985. This is regarded as the earliest possible date that the extra capacity can be made available, but is three years later than originally planned by the British Airports Authority.

The delay will produce overloading at Heathrow, which in 1979-80 handled 28.5m passengers, close to its design capacity.

Developments at London's second international airport at Gatwick, where £100m was spent recently on new facilities, have increased capacity to 16m passengers a year. Last year (1979-80) the airport handled a record 8.8m passengers, 11 per cent up on the previous year, through one terminal and one runway.

Second terminal

Government policy is to build a second terminal at Gatwick, boosting capacity to 25m passengers a year, but this is subject to planning permission and a final decision is still awaited. The extra capacity would boost total Heathrow and Gatwick capacity to 63m passengers a year by the mid-1980s.

In addition, and potentially more important as a long-term solution to the problem of finding extra airport capacity, in Britain, the Government plans to expand its little used airport at Stansted, Essex, north east of London, to up to 50m passengers a year. Only 400,000 passengers used the airport in 1979-80 when it had a maximum capacity of 1m passengers a year.

The initial plan outline in the Government's airports policy statement published in December, 1979, calls for Stansted to be expanded to 15m passengers a year by the late 1980s.

Elsewhere, the Australian Government has plans to build a second airport at Sydney, likely to cost U.S.$805m. The Federal Government has already given approval for this money and has also given the go ahead for the building of a second runway at Sydney's main airport at Mascot.

In Europe, Luxembourg's airport is to be expanded at a cost of U.S.$100m. The plan includes expanding one runway from [illegible] km to 4 km and linking the airport to the country's rail system.

Executive aircraft sales increase

BUSINESS AVIATION

LYNTON McLAIN

BUSINESS AVIATION continues to develop at a rapid rate despite the impact of the recession on company profits. Sales of new business jet and turboprop or piston engine aircraft showed some buoyancy last year although overall total sales from the largely U.S.-dominated light aircraft industry did fall compared with 1979.

The worst affected sector of the business aircraft market according to Cessna, the world market leader in light aircraft sales, was in the single engine category. This sector has traditionally dominated world markets for light and business aircraft sales. In 1978, total deliveries of single engined light aircraft by U.S. manufacturers reached 13,647 aircraft. By the end of 1979, this total had slipped to 12,682 aircraft and by last year as the impact of the recession worldwide forced potential customers to cut back on capital purchases, sales of these single-engine light aircraft had plummeted by about a third to 8,283 aircraft.

Mr. Russell W. Meyer junior, chairman and president of the Cessna Aircraft Company based in Kansas, said earlier this year that apart from the sharp reduction in unit sales of single-engine aircraft last year, deliveries of other light and business aircraft reflected a reasonably positive picture.

He suggested that the sharp fall in deliveries of the single-engine types was caused by a combination of rapidly rising interest rates in the U.S., Federal credit restrictions and a general concern about the economic environment.

Resilience

However, the other sectors of the light and business aviation market, and the ones that are of greatest interest to executive air travellers, showed substantially greater resilience in the face of the recession. But multi-engine light aircraft deliveries did fall rapidly, by about 25 per cent to 2,116 aircraft compared with 1979.

In the turboprop and jet aircraft fields, the U.S. manufacturers recorded increased sales. A total of 795 turboprop light and business aircraft were delivered last year, a substantial rise on the 637 aircraft delivered in 1979 and the 548 aircraft delivered in 1978.

Jet aircraft for business houses and executive use kept rising over the three years to 1980, when a total of 326 aircraft were delivered, compared with 282 in 1979 and 231 in 1978.

These buoyant sales reflect the demand for higher performance aircraft, including single-engine aircraft based on turboprop power. Smaller twin-engine executive aircraft fared less well, but as the figures show, multi-engined piston aircraft still sold in substantial numbers.

Demand for turboprops grew rapidly over the period. Sales rose by 16 per cent in 1979, in terms of the number of aircraft sold and by 25 per cent in 1980. The business jet market increased by 22 per cent by number of aircraft sold and by a full 16 per cent in 1980.

Most observers outside business aviation probably thought the recession was deep enough to stifle any interest companies might have had in owning and operating a business jet. Cessna believe from a further analysis of these deliveries that customers were not simply buying the cheapest aircraft as a way of making a low-price entry into executive air transport. The deliveries showed a greater proportion of more expensive aircraft in the turbine-powered category over the past three years.

This buoyancy in demand for business and light aircraft at times of falling industrial and economic activity is reflected in the performance of Cessna as the market leader. In the 1970s Cessna consistently held at least a 50 per cent share of the market for light and business aircraft. In other words, since 1970 the company has consistently sold more aircraft in these categories than all other manufacturers in the world combined.

In 1980, the company gained a total share of the market of 53.8 per cent and delivered 6,393 aircraft. This was the highest performance in terms of market share the company has ever achieved, and Cessna accounted for 63 per cent. of all deliveries of single engine aircraft, 38 per cent of multi-engine piston aircraft and 45 per cent of business jets.

Business aviation comes into the category of general aviation, a sector which includes all aircraft used for whatever purpose other than by airlines and military authorities. The sector includes a total of more than 220,000 aircraft worldwide, but the greatest use for these aircraft is still as transport for business and commerce.

In the U.S. 120m passengers were carried in this category last year, with aircraft operating out of every one of the U.S.'s 12,000 airports.

Cessna is currently developing an entirely new category of business jet, designed for intercontinental operations. The Citation III is designed as an eight-seat to 12-seat aircraft and is scheduled to be certified by the U.S. Federal Aviation Administration in April next year. Deliveries are expected to come in the following year, but already Cessna has received 130 orders for the aircraft.

The company is also launching the Crusader, a piston engine twin light aircraft later this summer. The aircraft is designed to replace the Cessna 310 which has been in production for 25 years.

The British Aerospace 125 Series 700 executive jet is enjoying wide sales and is popular with businessmen

With a range of piston engine, turbo-propeller and fanjet aircraft for sale this year, Cessna expects the average sales value to be approximately U.S.$200,000 per aircraft.

In Britain, Hamlin Aviation, based at Leavesden Airport, Watford, estimates that the business executive can enter the company aircraft field at a cost of £50,000 for the cheapest single engine aircraft. But this size of aircraft would have limited benefits for would-be business travellers, as at least two and preferably more passengers are needed to make operations viable.

The cost of operating an average aircraft would be approximately £6,000 a year for maintenance, with about £3,000 every three years for a major overhaul.

These and all other costs of operating a business aircraft are 100 per cent tax deductible.

Potential operators for company aircraft have to assess the relative costs of travelling by scheduled airlines and by private aircraft. But to the cost of airline tickets has to be added the costs, time and inconvenience of travelling to and from major airports.

Shuttle opens a new era in the exploitation of space

SPACE RESEARCH

MICHAEL DONNE

WITH THE virtually flawless launching, orbiting and landing (after its initial delay) of the U.S. Space Shuttle—the Manned Reusable Space Transportation System — on April 19-21, the exploitation of space has entered a new era.

The Space Shuttle, which has taken 10 years, and more than $9.6bn to develop—a sum that is expected to rise to about $14bn by the time the system is working regularly in the mid-1980s—is intended to provide a means of putting payloads into near-Earth orbit using a vehicle that can return to Earth after each mission, to be refurbished for re-use.

In this way, it is expected that the cost of actually using space will become much cheaper, while the volume and variety of the payloads involved will increase, than would otherwise have been the case had the Shuttle not been invented.

The Shuttle system comprises a massive Orbiter vehicle, shaped like an aeroplane and of about the same size as a DC-9 jet airliner, which is carried off the launch pad by means of two large solid rocket boosters whose power supplements the three main engines in the Orbiter itself. Fuel for the Orbiter's engines is carried in a massive external tank, on which the Orbiter sits, piggy-back fashion, for its ride into orbit. The solid rocket boosters are jettisoned two minutes after launch, to splash down in the Atlantic Ocean for recovery and refurbishing for re-use.

But the external tank, jettisoned after about eight and a half minutes of flight, is allowed to splash down in the Indian Ocean and is not recovered.

Experiments

Each Shuttle mission in space can last for up to a month, depending upon the type of mission involved. The Orbiter carries a two- to three-man crew, but provision is also made for up to an eventual crew of seven, including a number of mission and payload specialists whose task it would be to control and monitor the various specialist experiments carried into space in the Orbiter's massive cargo bay, 60 ft long and 15 ft in diameter with large doors that open the cargo bay to the space environment.

The aim is to use each Orbiter vehicle up to 100 times. Four Orbiters are planned. In addition to the existing Orbiter, Enterprise, there are three more under construction — Challenger, Discovery and Atlantis—and there may also be a fifth. Between now and 1990, the U.S. National Aeronautics and Space Administration plans up to 487 missions.

The next three Shuttle launches, with one set for this autumn, will continue the flight testing begun by the Columbia mission completed this spring, and missions with fare-paying payloads will begin late in 1982.

Already, most of the space aboard the first 44 planned missions has been booked, with nine complete missions ear-marked for the U.S. Department of Defence, especially the U.S. Air Force, but many of the other payloads are to be taken up by various U.S. agencies, industrial companies, and scientific and academic institutions in the U.S. and world-wide.

The possibility of less wealthy institutions and organisations taking space on a Shuttle mission has been substantially improved by the introduction of what are called Getaway Specials.

These are small cylindrical canisters measuring 2.5-5 cubic ft, into which experiments can be placed, and lifted into space for a sum between $3,000 and $10,000. A large number of such small experiments can be carried in the Orbiter's cargo bay, and it is hoped that many organisations will take advantage of this.

For the bigger mission payloads, however, such as launching major new scientific or communications satellites, the cost will be substantially higher, ranging up to as much as $35m for a full, single-user mission of a week or more.

Europe is playing its part in the Shuttle, too. A large number of European aerospace and electronics companies have been involved over the past few years, under the leadership of ERNO of West Germany, in developing what is called the Spacelab.

This is a manned laboratory designed to fit into the cargo bay of the Shuttle Orbiter itself, carrying scientists and experiments into space. The Spacelab itself has two sections, a working section for the astronaut mission specialist who can live in shirt-sleeve comfort in space, and a payload "pallet" on which the various satellites or experiments, can be mounted.

Originally, it was planned that as many as 40 per cent of future Shuttle missions would use the Spacelab, but this may have to be reduced as a result of financial pressures on the U.S. National Aeronautics and Space Administration's budget.

There is still a possibility that, with the success of the Columbia, the U.S. Congress may vote to increase the NASA budget for space activities, which in turn may mean more cash for such ventures as Spacelab missions.

Each Spacelab would be capable of making up to 50 separate flights in the Orbiter's cargo bay, being brought back to Earth for refurbishing after each mission, and several Spacelabs have been planned for the 1980s.

The first Spacelab — an "engineering model" that will be used on the ground by engineers to work out the best positions for experiments — has been delivered to the Kennedy Space Centre, and the first Flight Model Spacelab is due to be delivered this summer, to be followed by a second Flight Model in early 1982.

Smaller loads

But, while the emphasis on the exploitation of space is now falling increasingly on the Shuttle, the conventional rocket to launch smaller payloads into space is not being ignored. Even in the U.S., there is still an extensive programme of conventional rocket launches planned with the Delta rocket, covering more than 40 separate missions through to mid-1985, with others likely to be booked for launches beyond that.

The U.S. will continue to use conventional rocket launches for some payloads, through the 1980s, until the Shuttle is so well established that the demand for conventional launching facilities dies away — although there are some in the space business who argue that the latter situation will never occur.

This argument is especially strong in Western Europe, where the European Space Agency has been developing the conventional Ariane rocket as Europe's rival to the Shuttle, and as an insurance policy against any future possibility of the Shuttle either failing or being denied to non-U.S. customers.

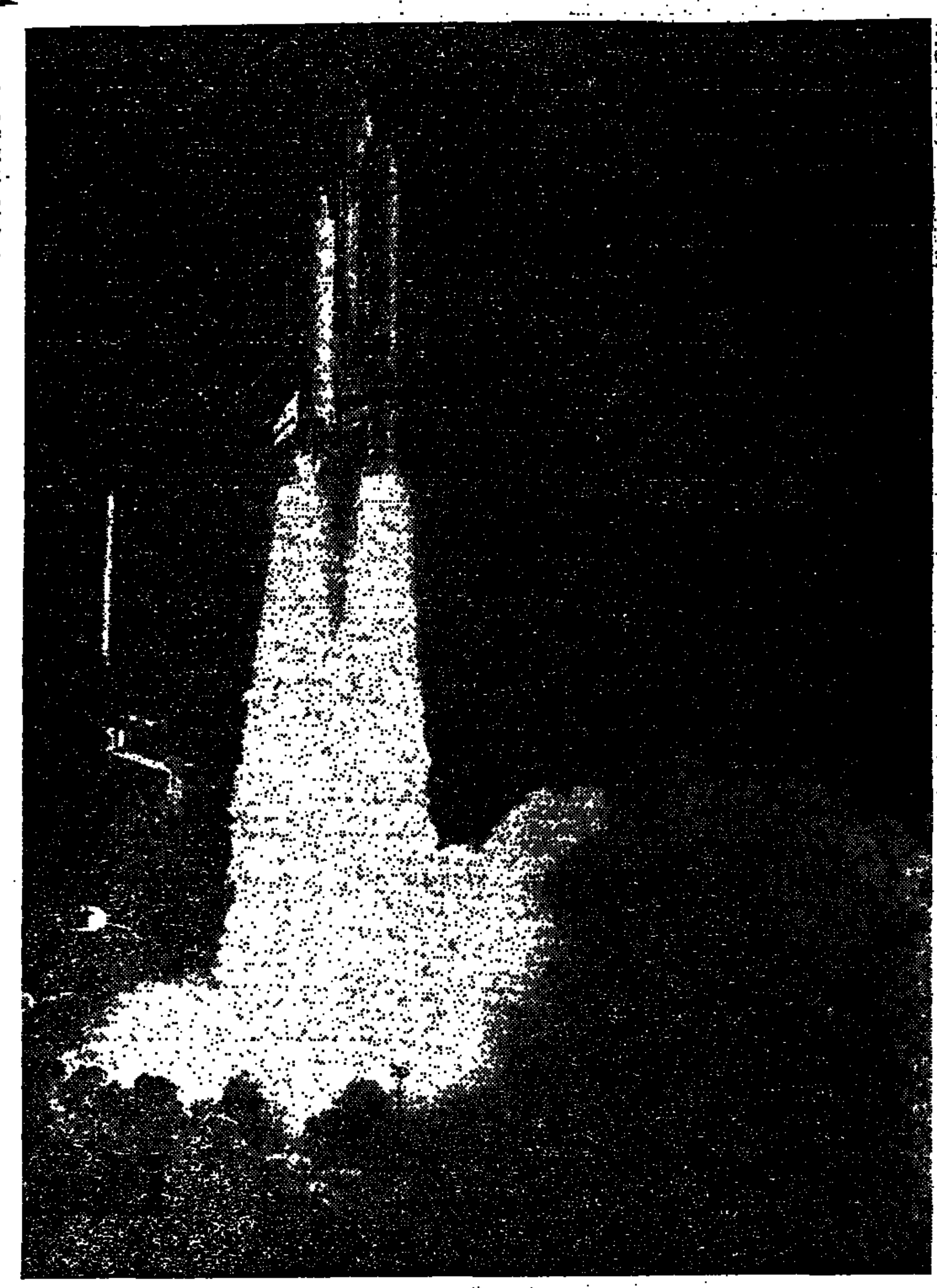
The Ariane has not had a faultless progress towards full maturity as a satellite launching system — LO-2 failed when launched from the Kourou, French Guiana, space base last May.

Since then much work has been done to correct the problems and improve the Ariane. The next launch in the series, LO-3, is on target for a launch late next month, when the Ariane will be used to put into arbit a meteorogical satellite—Meteosat—for the ESA itself, and the Apple communications satellite for the Indian Space Research Organisation.

If all goes well, this will be followed in October by LO-4, which will put into orbit the Marecs-A maritime communications satellite developed by the ESA. Then, from December, through to December, 1982, a series of six more launches will be made, putting into orbit a wide variety of communications satellites, including at least three of the latest and biggest satellites for the International Telecommunications Satellite Organisation — Intelsat — and the first European Communications Satellite, ECS-1, and a number of scientific payloads.

Beyond 1982, Arianespace, the company responsible for the Ariane programme, has booked, and is still booking, a wide range of satellite and other payloads for launches through the 1980s, so there seems every reason to believe that this European venture will be fully employed through the decade.

The European scientists in charge of Ariane are confident that despite the competition from the Shuttle, the European rocket will be used extensively by Western European nations and especially also by countries from the Third World.



The successful launch of the Space Shuttle from Cape Kennedy, Florida, in the spring opened a new era in manned space flight which the U.S. National Aeronautics and Space Administration intends to exploit fully through the 1980s and beyond

Record sums needed to pay for new equipment

FINANCING

FRANK GRAY

THE WORLD aviation community will have to raise record sums of money to finance the development and acquisition of new aircraft equipment that will come into use in the 1980s.

Mr. T. A. Wilson, the board chairman of the Boeing Company, says the open market for commercial jet transports over the next 10 years amounts to $122bn—some 73 per cent of which will be made to non-U.S. airlines. This does not include the additional billions now being raised or being considered for the new fuel efficient aircraft now beginning to roll into production on assembly lines in the U.S. and Europe.

The news comes as no surprise, given the evolutionary nature of the commercial aviation business and the close working relationships that tie airframe builders, engine manufacturers and airlines together. All are long-accustomed to looking ahead to see what new aircraft projects are in the offing and, with inflation an entrenched fact of life, each sector knows that the new hardware will be more expensive than that which preceded it.

Nevertheless, the financial burden that will have to be borne by the industry in the years ahead is weighing especially heavy this year with the world's airlines having experienced the worst financial year in their history. Many of them, such as Continental and Western Airlines of the U.S., are facing mergers, and Braniff, also of the U.S., is fearing for its very life.

In addition, at least two of the major airframe producers—McDonnell-Douglas of the U.S. and Fokker of the Netherlands—have reached a position from which they must decide soon on new airframe programmes or face an ever-decreasing role in commercial aviation. Lockheed California has already passed that point and has indicated it will withdraw from the new aircraft race and will just continue to refine its range of operationally successful but unprofitable (in manufacturing terms) TriStars.

Added to this is the debate currently going on in the U.S. over the role of the Export-Import Bank in financing overseas purchases of U.S. equipment and the proposal by the Reagan Administration to cut the Exim's loan authority to $5.1bn this year from $5.9bn. It is a move which, if carried out, would be crippling to the U.S. export effort, say industry officials.

Aggressive sales

The industry—both in the U.S. and Europe—currently is moving quickly towards the launch of the first phase of fuel-efficient aircraft aimed at helping the world's airlines control their operating costs and boosting their financial viability. In the last 18 months, this has revolved round aggressive sales programmes by Boeing of its 757 and 767 aircraft and an updated 737-300; the A-310 on offer by Airbus Industrie, the French-based European consortium, and the DC-9 Super 80 being manufactured by McDonnell-Douglas.

What has the manufacturers and the airlines reworking their sums now concerns the financial considerations connected with the latest "next generation" of aircraft—a 150 seater dubbed by Boeing as the 7 Dash 7, the A-320 by Airbus Industrie, and the MDF-100, by McDonnell-Douglas and its newly-acquired partner in the project, Fokker.

The development costs of these aircraft are put at anywhere between $1bn and $2bn each. Boeing, being the industry leader both in terms of product line and profitability, would finance its 7 Dash 7 out of its own private sector resources such as a special share issue, use of its own retained earnings and/or a further extension of the credit line set up to launch the 757-767 projects.

The McDonnell-Douglas / Fokker venture already has won a pledge of Fl 800m ($320m) in credits and financial guarantees to Fokker from the Dutch Government. In addition, Japanese participation is being contemplated, and a decision by the Japanese is expected during the summer.

Funding for the A-320 would come largely from state support from the various national consortia partners, of which Aerospatiale of France and Deutsche Airbus of Germany hold an equal 37.9 per cent interest and British Aerospace a 20 per cent share. CASA of Spain has a 4.2 per cent share.

The British Government will soon have to consider whether to pump some £400m ($820m) into British Aerospace to help BAe boost its share in the new Airbus model, and help Rolls-Royce jointly to develop with the Japanese a new RJ-500 engine to power the aircraft. Such a move could give Rolls-Royce an important competitive edge over Pratt and Witney and General Electric, both of the U.S., the other two major power plant manufacturers.

In addition, BAe, which already makes the wings for the A-300 and A-310, is anxious to get into airframe production for the new Airbus model to boost activity at its under-utilised UK assembly lines.

The handwringing that has beset the industry is not reflected by the world banking community which is as enthusiastic as ever at the possibility of lending vast sums of money to support the world's airlines in their re-equipment programmes over the next decade.

Consistent

Boeing, for example, estimates that 60 per cent of all sales up to 1991 — in effect, about $73bn worth — will go to non-U.S. carriers, with the remaining 40 per cent, or $49bn, to airlines in the U.S. This is consistent with the pattern that evolved in the 1950-80 period, in which foreign airlines bought $93bn worth of equipment against $73bn for U.S. airlines. It is for this reason that Boeing, McDonnell-Douglas and Lockheed are strenuously opposing any cutback in Exim bank credit.

No such problem is affecting any European-based lending or finance guarantee institution.

The Bank of America's European division in London said that "banks probably have more money available than the airlines want to borrow."

In spite of the financial problems confronting the airline industry, aircraft were a priority item for which banks were hungry to arrange financing. New aircraft benefited from their "high visibility, their value as collateral and the fact that they were foreign exchange earners to the countries under whose flag they fly," a banking official explained.

Other factors concerned the fact that high maintenance standards in the industry ensured that the aircraft held their value. While defaults on loans were rare, when they did occur, the aircraft remained fairly easy to recover as they were in constant use and, therefore, easy prey to court action when outside their national boundaries.

It was for this reason that aircraft financing was often a more attractive risk than infrastructural projects in countries with marginal economies.

Banking officials often point to Portugal, which was heavily indebted to international consortia on behalf of TAP, its national airline, during its revolution in the mid-1970s. No money was lost to the banking community during this period. Despite the fact that the company, now called Air Portugal, is far from profitable on strictly commercial criteria, it has full state backing and is considered a good risk.

The preparation of financing packages is increasingly being widened to include more banking institutions in lending consortia. Instead of a few major banks organising most of the funds to be loaned, many packages now include a variety of participating banks from different countries.

In this way, the risk is shared among more partners, smaller banks are allowed a piece of what is increasingly lucrative business, and the number of pressure points against the possibility of default is increased.

In the U.S., consortia of 10-15 banks had standing credit arrangements with domestic carriers to meet their borrowing requirements.

The Bank of America says the borrowing requirement for airlines based in Europe, the Middle East and Africa could be up to $24bn over the next decade. This was subject to amendment as many airlines were deferring orders and scaling back acquisition plans. The lion's share of orders would continue to come from Europe over the 10-year period with a borrowing requirement of $19.2bn forecast, while a further $3.3bn was seen for the Middle East and $1.3bn for Africa.

Price of the equipment itself continues to rise sharply, having generally trebled over the last decade.

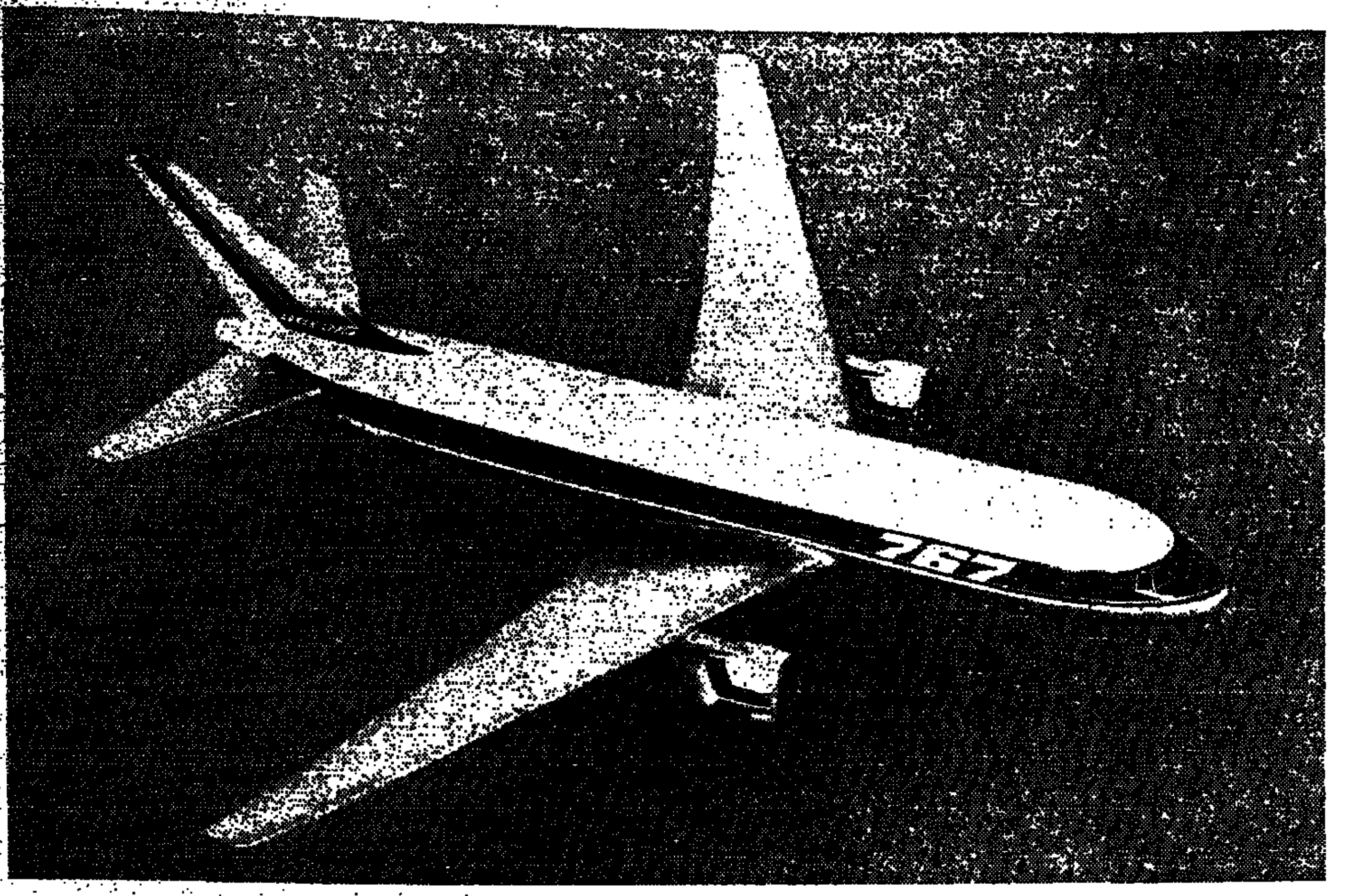
Boeing 747s, which cost about $20m when they were launched, in 1969, now are being sold at between $60m-$75m, depending on the spare parts included in the purchase. Lockheed TriStars and McDonnell-Douglas DC-10s are now on the market at between $50-$60m while conventional Boeing 727s and 737s are selling at $18m and $15m respectively.

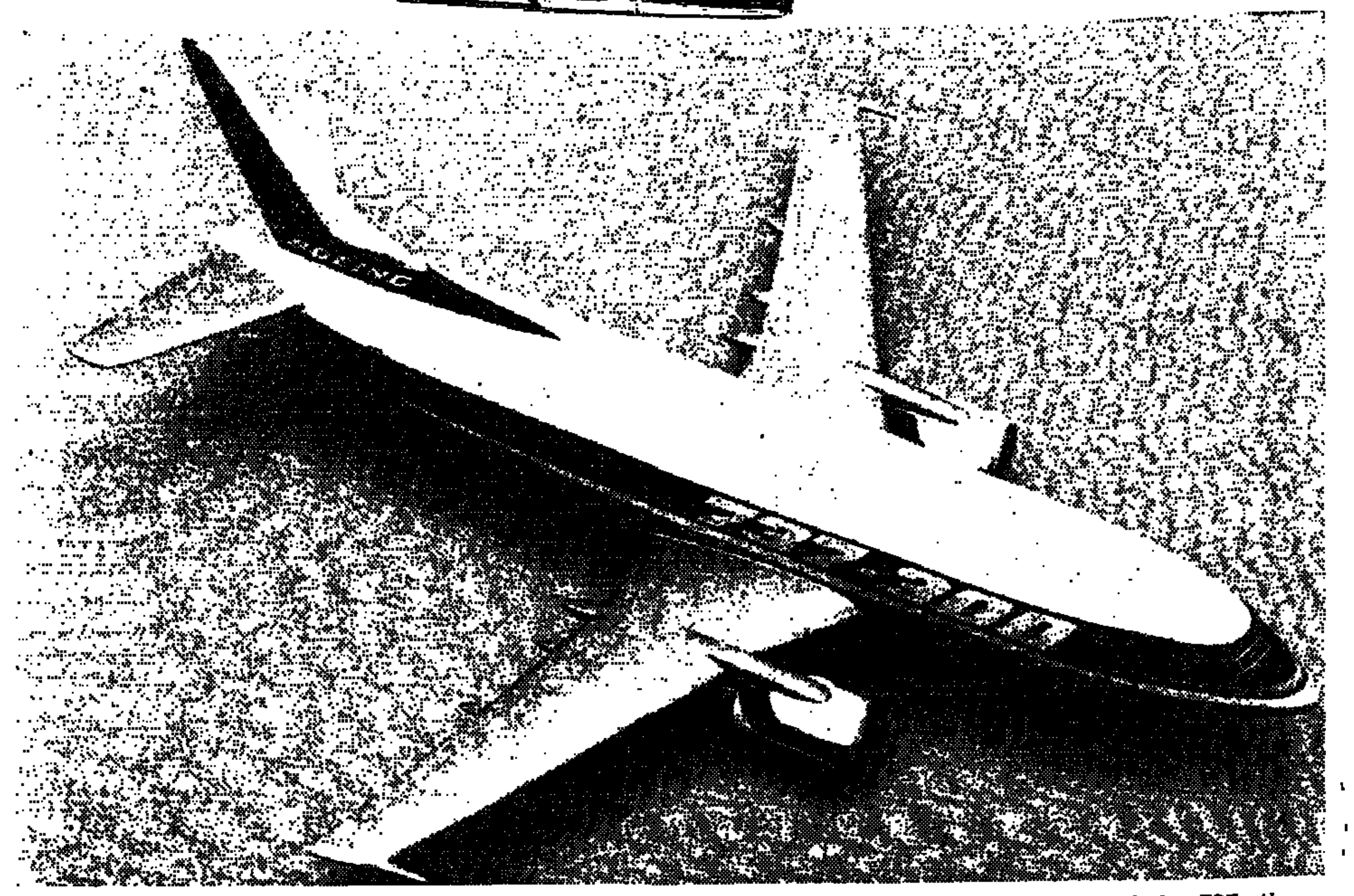
New feature

Britain's Export Credits Guarantee Department pointed out that a $50m financing package financed at 8.5 per cent over ten years would put the cost of an aircraft at $75m by the time the loan was paid off.

A relatively new feature in aircraft financing is "leverage leases" in which equity holders set up a company whose only asset is an aircraft, which is then provided on a long-term, often 18-year, lease to an airline.

The immediate advantage to the airline is tax deduction on a leased property and the lower monthly payments resulting from the longer term of the lease. It is estimated that about 5 per cent on non-U.S. aircraft are operated in this way—among them some aircraft operated by SAS of Scandinavia, KLM of Holland and British Airways. Some countries, such as Belgium, have national legislation against leasing, but this is understood to be opposed by Sabena.





The Boeing 767 semi-wide-bodied airliner (left) is one of three major new programmes being undertaken by the biggest jet builder in the world. The others are the smaller 757 and the latest version of the 737, the Series 300 (shown right)

Reagan's election reverses industry's mood of gloom

UNITED STATES

IAN HARGREAVES

THIS YEAR always looked like being a fairly lean one for U.S. aerospace companies because of the sharp decline in demand for the country's problem-hit airlines. But the election of Mr. Ronald Reagan and his promises of higher defence spending have dispelled whatever gloom may have been gathering.

It now seems possible that the industry will be facing strains on its ability to meet demand in the 1983-85 period, as the defence programme builds to a peak around then. There will be increased output on existing programmes, such as fighters and support aircraft, while production work will be proceeding on the new generation of air transports and on the manned bomber, both of which the Administration is committed to funding.

On the civil side, demand should also be picking up strongly as the airlines start to place firm orders as opposed to offering specification outlines for the fuel-thrifty short-to-medium range aircraft which most of the major airlines intend to buy in the second half of the decade. There should be cyclical demand recovery for other aircraft types.

Even on the space front, the success of the first flight of the Space Shuttle has raised morale to its highest point since the glory days of the Apollo programme. This psychological boost has at least partially offset the worry about the $500m budget cuts proposed for the National Aeronautics and Space Administration. One product of these economies is the postponement or cancellation of the so-called Solar-Polar Mission to send two exploratory spacecraft around the sun, a development which has not pleased the European Governments which have already put substantial efforts and funds into the project.

All of this means that the U.S. aerospace industry will be a place of opportunity in the next few years. But that does not, of course, guarantee that it will be a place for easy profits.

The immense development costs of bringing to market a new airliner or even a new aero-engine require the manu-f[illegible]ers more than ever to try [illegible]re both the maximum [illegible] joint ventures to share [illegible]d, so far as is possible in a country with tough anti-trust laws, careful avoidance of direct product competition, such as occurred with McDonnell Douglas's DC-10 and Lockheed's L-1011.

Partners sought

The first steps in adapting to this high cost environment have recently been taken by Douglas, which has outlined a plan to work jointly with Fokker of Holland on a 150-seat aircraft. Other partners are also being sought, possibly in Japan, and possibly among the engine companies. Douglas also wants to proceed with a stretched DC-10 and possibly a smaller version of the DC-9. But Douglas is, as ever, proceeding cautiously.

At Lockheed, the question is simply whether to continue battling with the unprofitable L-1011, which has in the last year added a sharp tail-off in orders and therefore in production rate to its seemingly never-ending problems. A strong case can be made for dropping civil aircraft manufacture altogether, especially as Lockheed is poised to play such a strong role in the growing military sector. It may be, although this is speculation, that the company is waiting to see whether it wins the prime contract to build the new air transport for the military, whether with its CX submission or with a cheaper C-5 derivative, before reaching a firm conclusion about the L-1011. Lockheed's balance sheet is still nowhere near strong enough to contemplate L-1011 derivatives, to say nothing of wholly new products in the civil field, and although the military business is profitable, it is not so lucrative as to suggest that this situation is likely to change in the next few years.

Boeing remains the great exception and its strength in the last year contrasted with the worries about Douglas and Lockheed, have created fears among American airlines that Boeing is on the way to monopolising U.S. airframe manufacture.

Any fears which Boeing may have had a year ago about market acceptance of its 757 jet, have disappeared in a strong wave of recent orders. Orders for the 767 have been less dramatic, but enough to comprise a foundation on which to build. The first 767 should be rolled out later this summer, followed six months later by the first 757.

Orders for Boeing and other wide-body jets are in the doldrums, a situation which cannot be expected to improve so long as there is such a large availability of secondhand wide body aircraft at knock-down prices. Overall, Boeing's backlog at the end of the first quarter was at $20.8bn, a slight improvement on the $20bn at the end of last year.

For the industry as a whole, the order backlog at the end of last year was $95.1bn, up from $78.3bn a year before, according to the Aerospace Industries Association—figures which also work against any pessimistic reading of the industry's outlook.

The industry's contribution to U.S. trade figures increased last year, with a $11.9bn surplus of exports over imports, compared with $10.1bn in 1979. Industry exports in 1980 reached a record $15.5bn up from $11.7bn the year before.

The only statistical measure indicating a degree of pressure on the manufacturers was on profits, where net profits as a percentage of sales fell from 5.1 per cent in 1979 to 4.2 per cent in 1980.

Positive signs

None of these figures, however, prevents the U.S. industry from worrying about the growing market share of Airbus Industrie or, more recently, about the threat posed by the Reagan Budget cuts to the Export-Import Bank. This bank has provided a great deal of soft loan financing for aircraft exports, in competition with the even softer loans available from the British, French and Japanese Governments.

The Aerospace industry's lobbyists are hard at work in Washington seeking to reverse this planned economy and they may yet be successful. If they are not, it will be much harder in future for the Americans to sell aircraft to the important markets in the developing countries. On the other hand there are positive signs that the Reagan Administration is willing to see some relaxation in the constraints which have hampered U.S. exporters from acting in concert to pursue foreign markets.

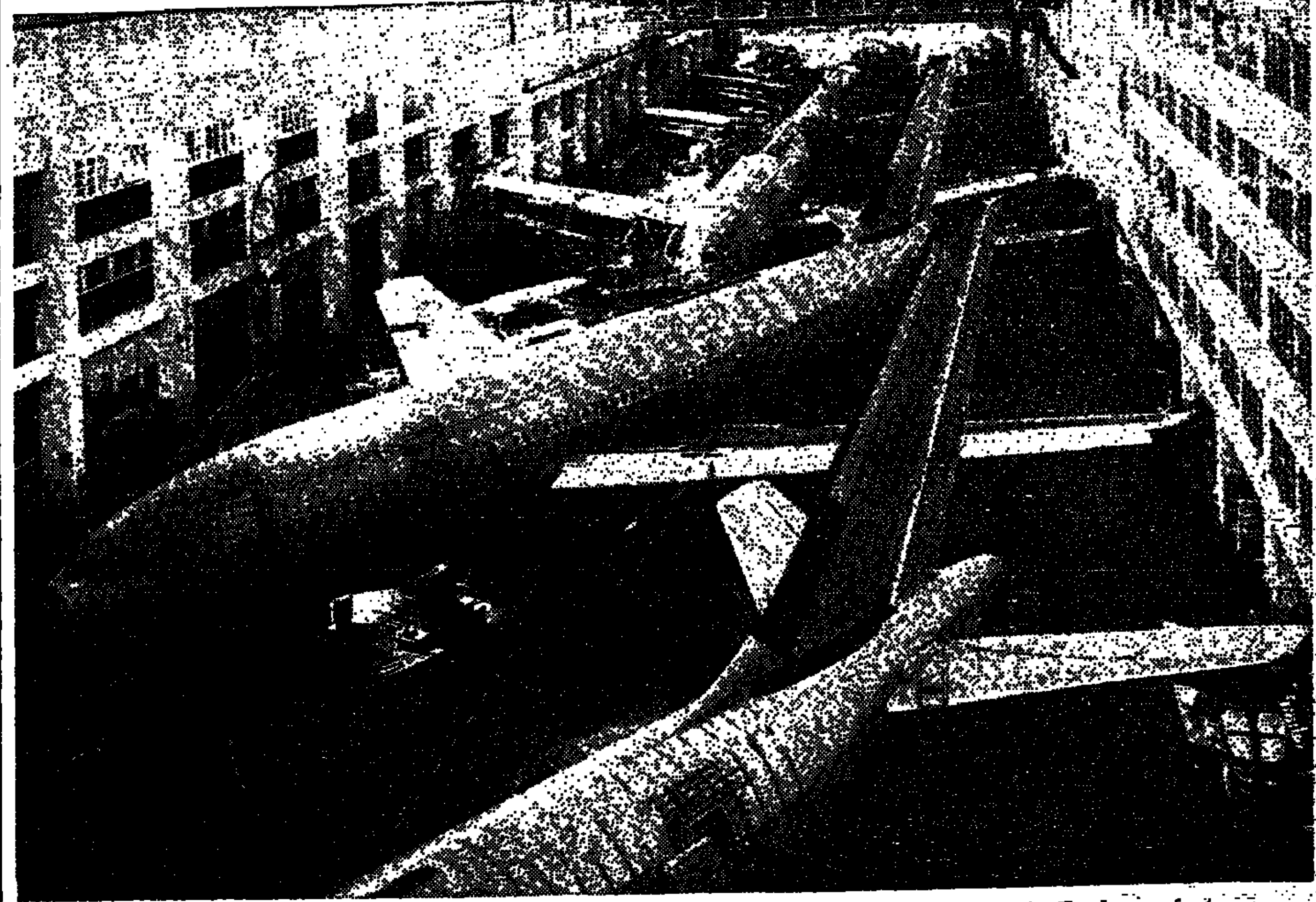
Perhaps the biggest danger for the U.S. aerospace industry in the next two or three years is that of relaxing into the arms of the newly-flush Pentagon and drawing back from risk-taking in the commercial field because of the promise of easier income from military programmes.

Experience suggests that for the companies which plan best, the maintenance of a satisfactory balance between the military and the civil is the right formula for success in aerospace. The art is to be in on the right projects.

That said, the military side represents the area of most immediate excitement for all the companies. All three airframe manufacturers are competing on the transport programme, a decision on which is due any time. The manned bomber may be a revival of the Rockwell B-1 bomber . . . dropped by the Carter Administration, or a modified version of a General Dynamics aircraft.

More important than any of these new programmes, to which can be added the start-up of the MX mobile missile programme, will be a stepped-up order rate for existing hardware, such as the fighters produced by McDonnell, General Dynamics, Grumman and Northrop, to say nothing of engines, helicopters and missiles.

There also seems a reasonable chance that the industry will win. Its case for multi-year ordering ought to lead to better planning, greater control of overheads and ultimately lower costs for the Pentagon and better returns for the manufacturers.



A-300 Airbuses seen in production at the final assembly hangar at Aerospatiale's Toulouse factory. Aerospatiale is a member of the Airbus Industrie Consortium

Mitterrand's victory may lead to nationalisation

FRANCE

DAVID WHITE

"IF THE majority of the French people decide that arms factories should be nationalised, the only thing to do is to accept it. There is not a shadow of doubt about that."

That was M Marcel Dassault, chairman of Avions Marcel Dassault - Breguet Aviation, France's second largest aircraft manufacturer, on the last occasion that his company was threatened with takeover by the State.

M Dassault, who at 89 is the oldest MP in the country's National Assembly, may well live to see the day his company is nationalised, if M Francois Mitterrand's presidential victory is followed up by a left-wing majority in parliamentary elections.

The remainder of the arms and aerospace industry, which are already largely under State control, will be among the first items on the list if nationalisation laws are passed. Besides Dassault, this would bring in a large part of Matra, the missiles group.

It was not without reason that M Dassault was resigned to fate back in 1978, endearingly applying to be kept on as a technical counsellor in the group he built up. President Giscard's government was preparing anyway to take an interest in Dassault, a project finally fulfilled two years ago when it bought 20 per cent with double voting rights, enough for a blocking minority.

The move, in which the state pooled its aerospace shareholdings, was aimed at better co-ordination within the industry in the planning, execution and subcontracting of programmes. The Socialists' plans, which stop short of creating a single State aerospace monopoly, follow the same logic, bringing Dassault closer to the State-owned Aerospatiale and the latter's space and missile branch closer to Matra.

Policy revision

However, M Mitterrand's election as Head of State will affect the industry in another important way by a revision of France's arms export policy. He has said the Government will halt arms sales to "racist and fascist" governments. Uncertainty in the industry about the exact implications of this policy poses a problem for salesmen at the Le Bourget air show, taking place between June 4 and 14.

The Salon, the 34th since its foundation in 1909, can claim to be the world aerospace industry's biggest shop-window, with more than 700 exhibitors, 25 countries represented and as many as 500,000 visitors expected to turn up.

This year's Salon coincides with a generally euphoristic mood among French manufacturers. The industry increased its turnover by about a fifth last year to FFr 33bn ($6bn) and, with a workforce of 110,000, is one of the few sectors in France to have been taking on new employees. In 10 years, the proportion of production exported has risen from less than 40 per cent to 60 per cent.

Aerospatiale, the biggest group, headed by the new President's younger brother, Air Vice-Marshal Jacques Mitterrand, has emerged from a bleak period and is now fully occupied in all four of its divisions — airframes, helicopters, missiles and space.

Foreign orders to French industry rose fractionally last year to FFr 27bn, equivalent to about a quarter of the country's oil bill. French shares of projects such as Airbus, the Alpha-Jet trainer and the Jaguar fighter-bomber, carried out in co-operation with other countries, accounted for 44 per cent of the total.

Big increases in orders for missiles and helicopters compensated for a drop in the aircraft sector.

France has made important inroads in the U.S. market, where its sales rose 17 per cent last year to FFr 1.75bn. The bulk of this comes from Dassault's business jets and Aerospatiale's helicopters.

The main success is, of course, the Airbus, in which Aerospatiale is one of the main shareholders, although the rapid influx of orders is now levelling off. Far outstripping the record of the Caravelle, the last successful French airliner, in the 1960s, 469 firm orders or options had been registered from 40 airlines at the time of writing.

The 250-seat A-300 is already in service with 25 airlines. The final assembly stage of the first 210-seat A-310, due to go into service in 1983, is just beginning at Toulouse.

The Socialists are in favour of going ahead with the planned new twin-engined, single-aisle aircraft, the A-320, seating between 130 and 170, as a priority over other projects. Airbus Industrie also has two derivatives of the current range on its drawing-board, a stretched version and a long-haul four-engine version.

A decision on the A-320 is required this year if the aircraft is to compete with rival projects from Boeing and McDonnell-Douglas for key U.S. orders in this classification. British Aerospace has applied to have it assembled in the UK. The German partners are apparently much less interested, and Lufthansa, the West German airline, has said it does not want the aircraft if the French impose their CFM-56 engine.

This engine, built by State-owned Snecma in co-operation with General Electric of the U.S., carries with it French hopes of making an impact in the civil aero-engine market. A breakthrough has been made with the first orders for the Franco-U.S. engines to equip the new Boeing 737-300. Previously the only orders had been for refitting KC-135s (the military version of the Boeing 707) and some DC-8s.

Snecma, hitherto largely geared to equipping France's military aircraft, is betting on with Central Electric of the U.S. the CFM-56 for the narrow-fuselage market of the 1980s and 1990s.

More promising export sectors have been missiles and helicopters. Orders for helicopters doubled last year to FFr 3.9bn, and Aerospatiale clinched its biggest civil helicopter contract at the beginning of the year—35 Super Pumas for Bristow Helicopters of the UK, worth some $200m.

Certification

Aerospatiale, for whom this has traditionally been a profit sector, is now the biggest manufacturer in the world behind Sikorsky and Bell of the U.S. Its third generation of helicopters has just received certification and its order book of over FFr 6bn is enough to keep it busy for two years.

Orders for the French missiles and space sector more than tripled last year to FFr 10.1bn from FFr 3.1bn. In space, France continues to pin hopes on the European Ariane launcher—to which it is the biggest contributor—despite the failure of its second test flight last year. The critical third test, put back several months, is now due late this month.

The budget for the French space research centre, CNES, has been increased by a quarter to FFr 2.5bn this year, including work on telecommunications and television satellites.

In the military sphere, Dassault has added to its list of export triumphs an Egyptian deal for the Franco-German Alpha-Jet. But it is still having teething troubles with the new fighter it is building for the French Air Force, the Mirage 2000, and some uncertainty hangs over the twin-engined export version, the Mirage 4000, which is not receiving French State finance.

A cutback on French arms sales would not necessarily be disastrous for Dassault. It could take back some parts of its civil aircraft side which are currently contracted out, and could possibly become a subcontractor itself for the Airbus programme. In any case, the company's current order book is big enough to keep it going beyond 1982.

A-300 Airbuses being finally fitted out at Toulouse, prior to delivery to customer airlines

هكذا من الأصل

Merger will strengthen European competitiveness

WEST GERMANY

ROGER BOYES

AFTER four years of hesitation, negotiation and self-examination, the merger between Messerschmitt-Boelkow-Blohm and Vereinigte Flugtechnische Werke has taken off.

The merger, formally completed in January, comes as a great relief to the Bonn Governmetn which, in its anxiety to establish a truly competitive European industry had, to twist the arms of the shareholders, especially the Bremen Senate. Last year, the Bonn Government had to threaten a block on European Airbus funds intended for Vereinigte Flugtechnische Werke (VFW), in an effort to speed its merger with Messerschmitt-Boelkow - Blohm (MBB).

The agreement was thus not completed in the happiest of circumstances, and the difficulties surrounding the negotiations illustrate one of the central problems of the new concern. VFW has two main selling points at present—though skilful diversification is likely to produce other profitable sectors—Airbus production and space technology. Both these areas have helped to strengthen its position in the wake of its divorce from Fokker—and contributed to a tougher negotiating stance with MBB over the past year.

Dismantled

The German aircraft industry was dismantled after the Second World War, but before 1945 it could boast some of the world's leading manufacturers and designers—Messerschmitt, Heinkel, Dornier and Junkers.

Nowadays, the name Junkers is more likely to be inscribed on the side of a kitchen water-heater than on the wing of a fighter. When the industry began to regroup, the natural tendency seemed to be towards mergers in order to compete with already much larger U.S. aerospace concerns.

Messerschmitt managed eventually to put together a profitable enterprise after merging with Boelkow and Hamburger Flugzeugbau, and in 1970 VFW entered a 10-year transnational marriage with Fokker of Amsterdam, a union that was only dissolved last year.

The VFW-Fokker marriage became an unhappy partnership, symbolised by the ill-starred VFW-614 airliner. It was only natural then that VFW should have second thoughts about re-marriage to MBB. In some ways, VFW executives were arguing last year, it would be better to retain independent management and simply strive for closer co-operation with MBB in key markets.

MBB, by far the larger concern, concentrates on military contracts—ranging from the Tornado multi-role combat aircraft to anti-tank missiles—and space technology (though principally satellites, whereas VFW activity has been involved in Skylab construction for the Space Shuttle and in the building of the Ariane Launcher).

On the face of it, they seem to be two complementary companies with relatively little overlap. The reasoning of the Bonn Government is easy enough to follow: On the one hand, there is VFW which is dependent on Government subsidy for its Airbus production and research, and on the other there is MBB which is dependent upon defence contracts. Why not, runs the argument, make use of our leverage to create a large unified national aerospace industry, capable of competing with British Aerospace and Aerospatiale of France, and perhaps competing with the U.S. giants?

A unified national—though not nationalised — industry would cut waste, make more rational use of research funds and ultimately be more capable of weaning itself away from subsidy.

There is also a slightly irrational factor at work, a sense of national pride and a need to revive the skills that once made Germany a pioneer in so many aspects of aircraft design.

But it was not to be. Bremen, which saw VFW jobs being exported to Ottobrunn where MBB is based, dug in its heels, but Bonn piled on the pressure and the merger came to its inevitable conclusion. The celebratory cocktail parties have been held and officials in the Economics Ministry are talking of "brand new horizons."

Is there really cause for celebration? Consider the following three factors. In the first place, even after the merger, the new company's total turnover is unlikely to exceed DM 5bn (£1.06bn) — in 1979 MBB registered DM 2.6bn sales and VFW recorded DM 965m—which is far less than the U.S. concerns (Lockheed's total revenue for 1979 was $4bn, McDonnell Douglas $5.2bn and Boeing $8.4bn).

Admittedly the turnover is not much below that of British Aerospace and Aerospatiale—but that kind of comparison disguises the fact that MBB and VFW will most certainly have to cope with hefty co-ordination problems in the first two years—sales may be roughly comparable, bu the newly-merged concern will not be operating at its full effectiveness.

Rationalisation

Aerospace sources suggest that there will be a tendency towards rationalisation and chopping off inefficient limbs during the early years, and they warn not to expect any radical jump in sales.

In terms of size and effectiveness, MBB-VFW is unlikely to pose a major challenge to the established market leaders. The second problem area is the company's high dependence on military contracts.

MBB, with its turnover of about DM3bn owes 70 per cent of its sales to the armed forces, and VFW, though less dependent is also vulnerable.

In the U.S. such a high dependency on military order books is rather desirable—increases in defence spending regularly bring good news for the U.S. manufacturers. In Germany however, defence spending has gone up—by a nominal 7 per cent—but most of the increase has gone to patch up leaks in the Budget rather than for new procurement orders.

On the contrary, financial and managerial miscalculations surrounding the acquisition of the Tornado Multi-Role Combat Aircraft has prompted senior Defence Ministry planners to re-think their priorities. While they stress that all Tornado bills will be met, there is a strong current of thought in the Ministry suggesting that the focus should now be on smaller and simpler systems.

This is not just because of the financing difficulties, but also because of the length of training time required. The conscription period of 15 months is far too short to turn out the kind of skilled technician increasingly called for. The first indication of trouble came three months ago with Germany's withdrawal from the planning of the German-French-British Tactical Combat Aircraft.

That and the delay or cancelalation of a number of other air support projects, should sound a clear warning to the German aerospace industry that the days when a regular flow of military projects could be expected may well be numbered.

MBB is apparently undeterred by these developments and is working on a number of designs but it must obviously brace itself for difficult times.

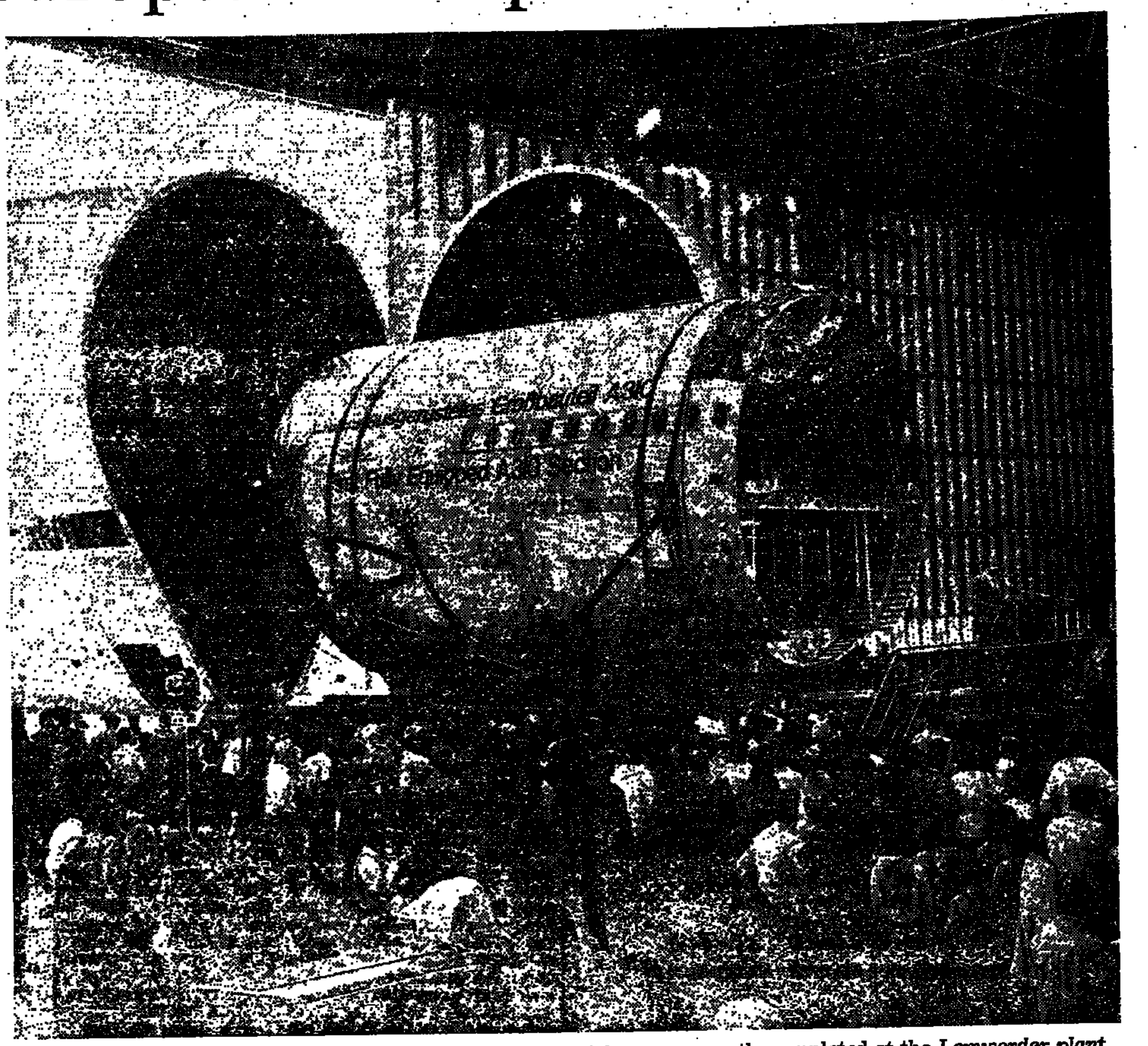
It is significant that, for example, some of the Defence Ministry's major cuts (carried out in order to pay Tornado bills) come in the research and development area—the aerospace industry is the largest industrial recipient of State R and D support.

If this turns out to be a constant trend, the Ministry may well have to gear itself increasingly to buying U.S. aircraft rather than entering the lengthy—and almost always more expensive—process of developing a German military aircraft.

The final problem confronting the new concern is less easy to define. It has to do with common strategy and a genuinely unified approach to future developments. The tug-of-war between the northern VFW and the southern MBB, each anxious to keep large slices of the action, has made for a spirit of internal competitiveness that may ultimately benefit productivity but at present does little more than cloud the joint horizons they should be developing.

The matter has been compounded by the fact that the main shareholder of VFW is the City State of Bremen and major shareholders in MBB include the State of Bavaria. Both public bodies are understandably concerned about boosting employment in their regions.

Bremen is in an especially bad way, caught by the steel and shipping crises and suffering from the European row over fishing rights. The general direction is thus along the lines of empire-building, pushing for optimum staffing levels and—although Bremen officials deny this resistance to radical change. It is still too early to judge whether these negative factors will outweigh the advantages of the merger. It is unfortunate that the merger had to be completed in the middle of a recession.



The first major fuselage assembly for the new A-310 Airbus was recently completed at the Lemwerder plant of Vereinigte Flugtechnische Werke of West Germany and despatched to Toulouse, where final assembly takes place

The growth areas will probably be in helicopter development — joint ventures are expected to set the key note — in further space co-operation with the U.S. — though much hinges on the progress of the Space Shuttle programme — and in satellite development.

The future of MBB's satellite programme depends partly on political and financial developments — Bonn is still debating whether it should allow private television.

Other strong points will include missiles — these stand-off missiles are expected to become an important part of the Defence Ministry's shopping list over the next decade — and the introduction of energy saving materials.

The see-saw effect of military contracts has to be counterbalanced with stabilising long-term programmes. MBB-VFW have a generous sprinkling of these. For example, via the 100 per cent subsidiary Deutsche Airbus: it has a 37.5 per cent stake in Airbus Construction; a 50 per cent share in the German-French Euromissile concern; a 24 per cent stake in Eurosatellite, and a 50 per cent slice in German-French anti-tank helicopter development.

It also has a 42.5 per cent in the Anglo-German-Italian Tornado.

Multinational collaboration is of course not an end in itself and can sometimes backfire on the participants. But it is likely to become an increasing necessity, with Government R and D funds shrivelling and a nagging uncertainty over export markets. Germany has much stricter arms export laws than the French which severely limits its scope in the Middle East.

The merger should make it easier to collaborate across frontiers and should centralise decision-making. But the dilemma is that expectations are high, not least from the Government. The advantages of the merger are unlikely to emerge for four years or so.

Aeroflot's expansion depends on new jet

SOVIET UNION

ANTHONY ROBINSON

*AFTER LENGTHY and un*explained delays, the Soviet airbus, the Ilyushin IL-86, has finally begun regular service with the Soviet airline Aeroflot. Up to now, however, the new aircraft has been introduced on two routes only—the 90-minute hop from Moscow to Mineralye Vody and the three and a half hours' journey to Tashkent.

The airbus, which made its first flight back in 1977, was due to enter regular service in considerable numbers in time for the Moscow Olympics last summer. But trouble with the engines has exposed the need for substantial modification and an extended flight testing programme.

According to the Soviet news agency, Tass, *the airbus, which* is made in the big Ilyushin factory at Voronezh, has made 2,000 test flights. During 3,600 flying hours it "operated faultlessly in tropical heat and at minus 50 degrees *Centigrade*."

During the current five-year plan, 1981-85, the airbus is scheduled to take over much of the load on the busiest routes between the major industrial cities and also between Moscow and Leningrad and the Black Sea resorts.

The rapid entry into full service of the 350-seat, four-engined jet will be essential if Aeroflot's ambitious expansion plans are to be fulfilled. The other major new aircraft to come into operation during this five-year plan is the Yak-42—the re-engined and extended version of the successful Yak-40 trijet the production of which has been terminated to make way for the Yak-42. Like the airbus, however, the Yak-42 has *also experienced* delays, but it is now in serial production. It is made at the Yakovlev plant in Saratov, south of Moscow. This 120-seat tri-jet will be gradually introduced on services from Moscow to Izhevsk, Voronezh, Krasnodar, Anapa, Donetsk, Archangel, Petrozavodsk and other feeder-line, intermediate routes.

It is also available in a cargo version, and new fuel-efficient engines give it a reported 3,000 km range at 820-850 km/hour and a maximum payload of 14,500 kg. Like the Yak-40, its three-engine configuration and sturdy under-carriage is designed for use on short, rough runways and in mountainous areas.

Relieving strain

These newcomers to the Aeroflot stable will help to increase capacity and take some of the strain off the existing workhorses of Soviet civil aviation—the Tupolev 134, the Tu-154 tri-jet and the four *engined Ilyushin* IL-62, all of which being essentially 1960s' aeroplanes with noisy, thirsty engines. The development of quiet, powerful and fuel-efficient by-pass engines for *civilian* use lags well behind the major U.S. and UK engine-makers, mainly because resources are concentrated on military and rocket engines.

Other areas where the Soviet aerospace industry *has* made rapid strides include helicopters and hovercraft, while considerable research and development work is now taking place on various forms of airships and lighter-than-air craft.

Once again all these are areas with considerable interest for the military. This helps to ensure adequate funding. But the ability to lift large quantities of men and material over hostile terrain is also vital to the further development of the civilian economy.

The economic axis of the Soviet Union is shifting progressively towards the huge mineral and energy resources development projects in the far north and east of this multi-national country which straddles half Europe and half of Asia and extends through 11 time zones. Much of the north and east consists of trackless tundra or mountain ranges crossed by fast-flowing rivers.

Permafrost covers vast areas where research and exploration work is now taking place. The *top layer melts in the brief* summer months and huge areas turn into marshy quagmire which bogs down tracked vehicles and makes the construction of roads and railways a massively expensive and time consuming operation.

Under these circumstances it is not surprising that the Soviet Union has made a major effort *to develop heavy-lift* helicopters.

The best-known of these "flying crane" helicopters is the Mi-10, whose extended stilt-like legs straddle a platform capable of carrying a 15-ton container, trucks, loads of steel pipe and other equipment, and the Mi-6, which is one of the world's largest helicopters. It can take up to 12,000 kgs of freight or carry up to 70—military or civilian—passengers.

Like others in the Mil stable, these giant aircraft are built at the Mikhail Mil design bureau plant at Zaporozhye.

In the hovercraft field, too, a host of variants is under construction or planned. The vehicles are ideal for the frozen north. Called amphibious air-cushion craft by the Russians, one of the main *designer* bureaux is the Neptun Central Design Bureau, whose latest offering is the Bars-1 model. This can carry 10 passengers and up to 800 kgs of cargo. It is intended for operations *in* Siberia, the north and far east and is expected to be used mainly as a supply and communications vehicle for construction or drilling teams in remote areas and for the transport of geologists involved in the Soviet Union's massive exploration programme.

Terry Kirk

The Ilyushin IL-86 four-engined, wide-bodied airbus, which is designed to be the backbone of the Soviet Aeroflot passenger fleet through the 1980s. It will carry up to about 350 passengers

Hovercraft have also caught the eye of the Soviet military. Western television viewers saw the latest hover-assault craft in action in the Baltic during last autumn's Warsaw Pact *manoeuvres*.

Apart from hovercraft, lighter-than-air machines are now exciting great interest in the Soviet Union. Several ingenious schemes are now on the drawing board. One of the latest ideas is the electric airship.

According to a report in the Soviet trades union paper, Trud, Soviet specialists have designed a special airship 90m long and 30m in diameter, filled with helium and powered by three electric motors fitted with propellers.

Two smaller engines are mounted at opposite ends of the craft for lateral stability. The whole craft, with its carrying platform for containers underneath, would be connected via a pantograph to *an electric line* carried on pylons along the length of the "track."

According to the designers' calculations, building 10 freight ships and their power line to service a 600 km route would cost 40 times less than a road of similar capacity.

It is impossible to tell how many of the projects now under discussion will bear fruit. But the potential uses of airships to carry out lumber and ore from remote regions and to ferry in men and equipment are so many, and the potential economic *advantages so great, that* further development of airships can be expected in the future.

Meanwhile, back in the more conventional world of civilian aerospace, the Soviet airline Aeroflot has proudly announced that it carried over 500m passengers and 14m tons of cargo and mail over the last five-year plan period. It plans to increase this by a further 30 per cent in 1981-85.

The expansion has not been without problems, however. Delay in the introduction of new aircraft and a series of bad crashes and fatigue problems in the current series of aircraft in *service have caused major* problems over the past 18 months in particular.

Priority claim

As usual, Aeroflot will have first priority claim on the first batch of Il-86 airbuses and Yak-42s, but other Soviet bloc airlines will also take delivery of the new aircraft during the *1980s. The Polish airline, Lot,* is expected to be among the first of the Soviet bloc airlines to take delivery of the airbus. This in recognition of its part share of the airbus production process.

Polish aircraft factory plants at Mielec and Swidnik play a similar role to that played by British Aerospace in the Euro*pean Airbus programme. The* Polish plants produce the entire Il-86 wing along with other major sub-assemblies.

The Poles also build the An-128 feeder aircraft under licence as well as the older An-2 transport and several versions of the Mi-2 helicopter. The Polish industry also has licensing agreements with Rockwell International and Piper Aircraft of the U.S. and produces specialised crop spraying and other light aircraft for both Comecon and Western markets.

The Czechoslovak aircraft industry also has a good reputation in the construction of light aircraft and jet trainers.

The latest product of the Czechoslovak industry is the L-410 short take-off and landing feeder aircraft. This has been designed to replace the older An-2 model. The L-410 has been built to operate in tough terrain.

Aeroflot *itself* has recently taken delivery of the first models and put them into operation on a new route servicing the inhospitable Bering Island.

Romania is one of the most active Eastern European aero*space manufacturers, outside* the Soviet Union. The Intreprinderea de Avione Bucuresti—Bucharest Aircraft Enterprise—is busy on the manufacture of British Aerospace One-Eleven jet airliners, under a licensing agreement signed in June 1979. Three complete aircraft are being built for Romania in the UK, one of which has already been handed over.

A progressive transfer of One-Eleven manufacturing technology is also under way, permitting manufacture of up to 22 aircraft in both the UK and *Romania by 1985, after which* full production of complete aircraft will continue in Romania for both home and export, up to an eventual total of 80 aircraft. The first fuselages assembled in Britain for incorporation into aircraft on the Romanian assembly line were delivered last year.

Romania is also engaged in the production under licence of the Pilatus - Britten - Norman Islander light twin-engined transport aircraft.

Decision time for new fighter project

ISRAEL

DAVID LENNON

THIS WILL be the year of decision for the new Israeli fighter aircraft the Lavie, which is in the development stage following last year's approval of the project by the Government. Within the coming months, decisions will have to be taken on the configuration and the engine to power the aircraft as well as on which overseas company will be selected to co-operate in the venture.

"This project is very important for the continuation of aerospace capability and therefore for the well being of this corporation," explained Mr. Dan Mozes, vice-president, Finance, of Israel Aircraft Industries, the company which is eager to build the new jet, which eventually will take the place of the Kfir *combat fighter on* its production line.

Israel's earlier inability to sell the Kfir abroad, mainly for political reasons, it is claimed here, has been a blow to the company's hopes. But Mr. Mozes is "very optimistic" that this year the company will be able to sell the Kfir abroad now that the U.S. has lifted its earlier embargo on sales to Latin America of the aircraft's American-made engine.

Interest

Though Mexico recently decided to buy American aircraft after studying the Kfir, there are a number of other countries interested in the aircraft. The leader among those *must be Ecuador, which signed* a contract for the fighters four years ago which was later vetoed by Washington. The Defence Minister of Columbia was among recent visitors to the Kfir production line in Israel.

The company's proudest export achievement in the last year was the sale of 72 Westwind Two executive jets. This *rise in orders has led* the company to decide to increase production in the autumn from four aircraft a month to five. IAI is also developing a new generation business jet, the Westwind Astra, which will have a 3,000 nautical miles range with a cruising speed of Mach 0.8, as well as highly economical operation. It is hoped to have it *on the market by 1985* at the latest.

The provisional figures for 1980-81 show that IAI local sales remained at the same level as the previous year, while exports grew by 10 per cent in real terms to about U.S.$375m. This year, Mr. Mozes hopes exports will rise to the $500m mark, especially if the Kfir sales are realised.

The developing market for commuter aircraft in the U.S. is seen in Israel as offering a *potential for the STOL (short* take-off and landing) Arava, which has been sold to a number of countries, especially in Latin America, but has so far failed to live up to sales expectations. Following the U.S. deregulation of routes, there has been serious interest from an American customer, who believes the Arava has serious potential for use on "feeder lines" with its 19 passenger capacity and quick-change cargo capability.

The company's combat-proven Gabriel *sea-to-sea missile*, of *which there is* now a new Mark III model, which offers three operating modes, continues to be a good seller, having been bought by more than a dozen navies abroad. The company is also engaged in trials development work on two naval point-defence systems, the first firing trials of which are expected later this year.

Although with 20,000 employees and a wide range of products the IAI dominates the local aviation industry, there is a number of other companies which are making products *which are in high* demand.

The most interesting of these is Rafael, the armament development authority of the Ministry of Defence. After many years of secrecy, the company decided last year to lift the veil on some of the products which it is successfully selling overseas. The best known of these is the Shafrir air-to-air missile, which has reportedly been sold to a number of countries.

Its popularity is explained by Mr. Benjamin Barness, international affairs assistant to the vice-president, who notes that it has a 60 per cent "kill ratio" on more than 100 aircraft shot down since the missile went into service with the Israeli Air Force.

The company will be unveiling a number of products at the Paris Air Show, which include the TAL cluster bomb which has been operational for a decade. Using a technique of spinning its hundreds of bomblets, it can cover an area of tens of thousands of square feet.

On the missile side, which Mr. Barness points out is Rafael's main business, it will show long and short range chaff rockets designed for use as missile decoys at sea.

Even more exciting, Rafael will put on show a Thermal Imagery System which it has developed for night observation. This will clearly demonstrate that Israel is now among the world's leading nations in the development and production of this advanced technique which is expected to dominate the market in the future.

Attractive

This is not all the company will show, and Mr. Barness expects its other products should draw great attention. This is a result of the company's concentration on research and development, which takes 65 per cent of the company budget, with the remainder going to production.

Rafael has a total in-house capability for developing and producing its systems. As Mr. *Barness stresses; "We have a* multi-technology, inter-disciplinary capability," which grew out of the country's historical need for an independent capability. He believes this should make Rafael an attractive partner for international co-operation, which it is now actively seeking.

Other companies displaying *wares at Paris* will be Iscar Blades, which produces gas turbine and jet engine blades and sells to four of the largest jet engine manufacturers in the world, and Bet Shemesh Engines, which makes gas turbines for industrial and aeronautical applications as well as producing over 30 per cent *of* the General Electric J-79 engines which power the Kfir fighter. It hopes for a large role in the Lavie engine.

There are also a number of Israeli companies which are producing advanced electronic warfare equipment and other high technology goods, such as air defence radars and mini remotely piloted reconnaissance drones. These products have *also played a role in pushing* Israel's military exports up in 1980-81 by 40 per cent, to reach about $1.3bn and Israeli hopes are that these figures will continue growing, so that they can help to fund yet more advanced developments.

Crucial time in struggle to survive

SWEDEN

WILLIAM DULLFORCE

OVER THE next 12 months the Swedish aircraft industry will be passing through a critical phase in its struggle for survival. This week SAAB-Scania and its three partners will submit to the Defence Procurement Organisation (FMV) their offer of a new multi-purpose aircraft system for the Swedish Air Force in the 1990s.

The FMV has already received three competing tenders from American manufacturers. Under the very tight schedule laid out by the Defence Ministry the Government must present a Bill for the purchase of the aircraft next March and the Riksdag (Parliament) must decide in May.

If it loses the order for the new aircraft, code-named JAS, Saab-Scania will be unable to retain its capacity to design and develop new aircraft. In April a Government Committee estimated that close to half the 13,000 people currently employed in the Swedish aircraft industry would in that case risk losing their jobs.

Collaboration

Even if the final decision goes in favour of building the JAS, the volume of work entailed will be considerably smaller than that put into the SAAB-Viggen series now being produced for the Air Force. But both SAAB-Scania and Volvo Flygmotor, the aero engine subsidiary of the automobile group, have been moving into civil aircraft production in collaboration with foreign partners.

SAAB is building a new factory at Linkoeping for the SF-340 commuter aircraft it will manufacture together with Fairchild Industries of the U.S. Flygmotor is supplying parts for General Electric engines and doing development work on two engines for another American manufacturer, Garrett.

As aircraft development and production costs have soared and increasingly tighter limits are applied to defence spending, it has become obvious that contracts from the Swedish Air Force can no longer sustain the Swedish aircraft industry. The industry has not succeeded in winning export orders.

Future hopes lie in the symbiotic combination of military and civic work that the industry is now trying to achieve. But without an order for the JAS project this strategy will collapse.

The group which has put together the JAS offer includes L. M. Ericsson, the Telecommunications Group, which will supply the radar and SRA Communications for the display and recording systems as well as SAAB-Scania and Volvo Flygmotor.

The specification is for a multi-role aircraft to replace in the 1990s the SAAB Viggen series which is currently performing the air defence, ground and maritime attack and reconnaissance roles in the air force.

At 8-10 tons the JAS will be considerably lighter than the Viggen. At the same time, it is intended to be a true multi-role aircraft, the one design fulfilling all three functions. Technology was not sufficiently advanced when the Viggen was designed to meet this aim.

The provisional defence plan assumes that 210 to 220 JAS aircraft would be bought at a cost of about SKr20bn ($4.5bn) in 1980 prices by the year 2000. There could be further orders later. However, procurement policy is still very fluid.

The foreign bidders are McDonnell Douglas with the F-18, General Dynamics with a later version of the F-16 than that currently being supplied to Nato, and Northrop with the F-5G. In practice, only the first two are regarded as serious competitors.

The FMV is likely to find difficulty in drawing cost comparisons between the domestic and foreign offers. While the SAAB-Scania group is showing a total cost estimate for an aircraft system to function for 20 years, the Americans are understood to be offering budgetary prices for unmodified aircraft straight from their production lines.

Within the FMV computer models are being worked out which it is hoped will offer a basis for a cost comparison, but the issue is complicated by the Swedes' desire to assemble in Sweden any foreign aircraft selected and to obtain offset purchasing orders for Swedish industry.

On a technical assessment the JAS will have the advantage of being designed specifically for the Swedish Air Force's special base requirements, in particular the ability to take off from short and rough runways.

Of the foreign aircraft the F-18 appears to meet the multi-role requirements most closely but it is twin-engined and probably more expensive. In its present configuration the F-16 would not fulfil the triple role but General Dynamics apparently believes there is development potential in its aircraft.

SAAB-Scania is reasonably confident that it will take home the crucial contract, but it could still fall into a political ambush. The Riksdag decided to fund design work on JAS only after a prolonged debate which disclosed strongly varying views about future procurement policy and about defence spending in general.

Shortlist

The need to trim costs means that the JAS will contain more foreign components than the Viggen. About 18 per cent of the cost of that aircraft went to foreign suppliers.

The choice of the engine for the JAS has not yet been disclosed. According to Volvo Flygmotor, which would expect to manufacture the parts and assemble the engine as it has done for the Viggen and its predecessors, no decision has yet been taken.

The engines under consideration are the General Electric F-404, which powers the F-18; the Pratt and Whitney PW-1120, a smaller version of the F-100 powering the F-16, and the Turbo-Union RB-199 used in the Tornado. Again, the American engines are the front runners.

Volvo Flygmotor, which last year reported a pre-tax profit of SKr 107m on a SKr 759m turnover, is currently pursuing a three-pronged survival strategy and reducing its dependence on military orders. These accounted for about 90 per cent of its sales during the early 1970s.

Now the proportion is moving down towards 60 per cent and by the 1990s Flygmotor hopes to function with three divisions of roughly equal size, one working on military engines, the second on civil aircraft engines and the third on projects outside aerospace, such as hydraulics and truck transmissions.

It has received two Government loans to enable it to buy into U.S. engine projects. One, the General Electric CF6-32, has been abandoned but Flygmotor's share has been transferred to supplying parts for General Electric's CF6-80A and CF6-80C engines. The Swedish company has about 100 people working on this contract.

With the second SKR 160m government loan Flygmotor bought into two engines being developed by Garrett. It has about 5 per cent of the TFE-731-5 turbo-fan engine which is intended for larger business jet aircraft and which after the success of Garrett's original 731 engine is regarded as a good prospect.

Flygmotor has a 15 per cent stake in the TPE-331-14/15 turboprop engine which Garrett is aiming at the commuter aircraft market. The U.S.-Swedish partnership has also developed the TFE-1042, a light military engine which has been put through demonstration test runs.

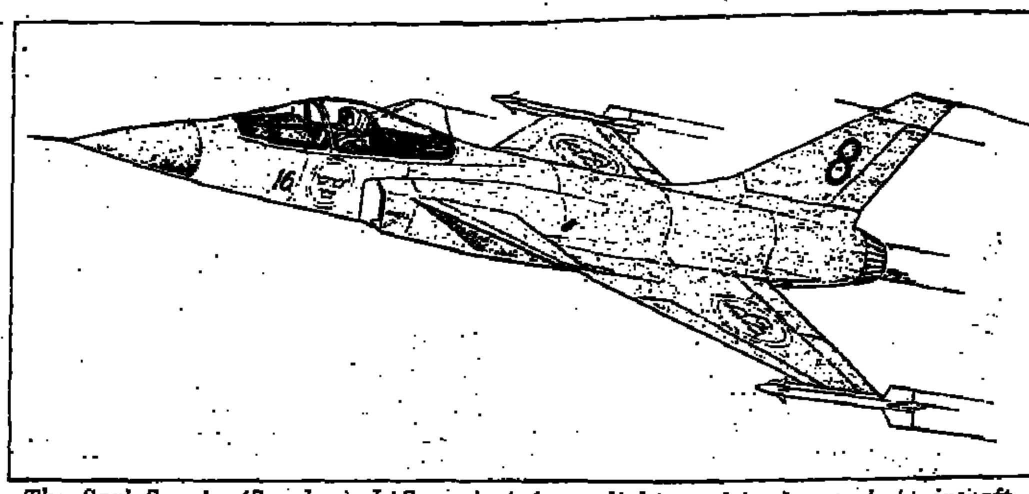
A customer is needed to stump up funds for further development of this engine and contacts have been made with Japanese aero engine makers. The Japanese are planning to build a light attack/trainer aircraft.

The Garrett-Flygmotor partnership suffered a setback when SAAB and Fairchild chose the General Electric CT-7 engine for the SF-340 commuter aircraft instead of the TPE-331-14.

The SF-340 has now collected some 90 firm orders and options, according to SAAB. In addition to American orders, firm contracts have been placed by Swedair, Crossair of Switzerland and Stilwell Aviation of Australia.

The first metal has been cut at SAAB's Linkoeping headquarters. In August a production team will be moving into part of the new factory, where the low-wing, 34-seat, turboprop aircraft will be assembled. Work is so far on schedule for the first production aircraft to be delivered in 1984.

The SAAB-Fairchild partnership is competing for a market which it estimated will reach close to 2,500 aircraft over the next 10 years. Several other manufacturers are moving into this market but SAAB considers its main rivals to be de Havilland of Canada's Dash 8 and Embraer of Brazil's EMB 120 Brasilia. The others, SAAB estimates, are about two years behind.



The Saab-Scania (Sweden) JAS project for a light, multi-role combat aircraft for the Swedish Air Force in the 1990s. A model of the aircraft will be seen at the Paris Air Show

Key is co-operation with overseas companies

JAPAN

MICHAEL DONNE

COLLABORATION WITH U.S. and European aerospace manufacturers has been one of the cornerstones upon which the development of the Japanese aerospace industry has been based over the past three decades, and it remains one of the principal objectives of the Government and the industry for the foreseeable future.

After the Second World War, and with restrictions initially imposed on the Japanese aerospace industry until 1952, the country was comparatively slow to re-engage in civil and military and engine aircraft manufacture.

Wherever possible over the past few decades, the industry has worked closely with overseas companies, especially in the UK and the U.S., on the repair and refurbishing of foreign aircraft and engines, or on the licence production—and in some cases co-production—of foreign designs, including fight aircraft, helicopters such as the Boeing Vertol 107, and military aircraft, such as the Lockheed Neptune maritime patrol aircraft and the McDonnell Douglas Phantom and F-15J Eagle fighters.

At the same time, however, the Japanese industry has sought to develop some indigenous designs of its own, some of which have been considerably successful. These have included the YS-11 turbo-propeller airliner, the Kawasaki C-1 medium-sized troop and freight transport, and various aircraft from Mitsubishi, such as the Diamond business jet aircraft, the T-2 twin turbo-fan engined supersonic jet trainer and the F-1 supersonic close support fighter.

These and other projects—such as the Shin Meiwa US-1 search and rescue amphibian for the Japanese Maritime Self Defence Force—have demonstrated the Japanese industry's expanding technological capabilities.

Similarly, in the aero-engine field, much knowledge and experience has also been gained through the manufacture under licence, and the repair and refurbishment, of foreign-designed engines, again mostly from the U.S. and the UK, including the Rolls-Royce Turbomeca Adour by Ishikawajima-Harima Heavy Industries (the power unit for the T-2 trainer and F-1 fighter).

As the Japanese industry's knowledge and confidence has grown, along with its economic strength in other directions, the Japanese industry has shown increasing interest in participating in the development of new civil jet airliners, as a means of gaining a share of the world's expanding markets, especially in the short-to-medium range field.

Long run

As a result of long negotiations, Fuji Heavy Industries—under sub-contract through the Civil Transport Development Corporation—has begun the manufacture of wing/fuselage body fairings for the Boeing 767 semi-wide-bodied transport aircraft, with the likelihood of a very long production run on that programme reaching well into the 1990s, covering many hundreds of aircraft.

The first Japanese parts for the first 767 have now been sent to Seattle, along with parts from Aeritalia of Italy and other Boeing sub-contractors, and the 767 prototype is due to be rolled out of the Everett, Seattle, factory this August, flying later in the summer.

The Boeing engineers are full of praise for the high quality of the Japanese engineering, and for the fact that the parts have been delivered on schedule.

For the longer-term future, the Japanese aerospace industry is being wooed by U.S. and European manufacturers in a bid to win its support with cash, manpower and production capacity for the new 150-seater airliner ventures now planned.

Airbus Industrie, with its A-320; McDonnell Douglas and Fokker, with their joint MDF-100 programme; and Boeing on its 7 Dash 7, have all been discussing with both the Japanese Government and the aerospace companies the possibility of some contribution from Japan on the projected 150-seater.

This programme corresponds in broad terms with Japan's own long-range plans for a new civil airliner programme, called the YXX, which has not yet been formally launched.

The Japanese hope that they will be able to join with one or another of the foreign manufacturers, contributing a substantial share of the development costs and production capability for such an airliner, in return for a share in world markets and the improved aeronautical technology such participation will yield.

Favours

So far, no decisions have been taken by anyone, and the discussions are likely to continue for several months, with all the competing European and U.S. manufacturers jockeying for the Japanese favours.

By the end of this year, however, or early next, it seems likely that the Japanese aerospace industry will have settled its participation in this prospective new venture.

Similarly, on the aero-engine side, there is now already an agreement between Rolls-Royce of the UK and the three Japanese engine companies—Ishikawajima-Harima Heavy Industries, Kawasaki Heavy Industries and Mitsubishi Heavy Industries—to undertake the development and eventual quantity production of a new engine, the RJ-500, of up to about 25,000 lb thrust, for the new generation of 150-seat or other short-to-medium range airliners that may emerge (another possible user of this engine is the new Boeing 737-300 short-range jet airline).

A joint company, Rolls-Royce Japanese Aero Engines, has been set up, and detailed design and development work on the venture has been under way for some time.

So far, however, there are no firm customers for the engine—although it is designated by all the major aircraft manufacturers as a contender for their 150-seater designs — and the engine has not been formally committed to quantity production.

It is hoped that it will be launched before the end of this year, however, because it is widely recognised that the RJ-500 is a leading competitor in the battle to win markets likely to be worth many hundreds of millions of pounds in the 1980s and beyond in the world's short-range airline markets

Commuter airliner helps to create a major new force in aviation

BRAZIL

MICHAEL DONNE

OVER RECENT years, a small, twin-engined turbo-prop 20-seat "commuter airliner" has been making a growing reputation for itself throughout world airline markets.

That aircraft, the Bandeirante, comes from Brazil, and is shortly to be joined on the routes by a larger twin-turbo-prop airliner, the Brasilia, now under development. Between them, these two aircraft seem likely to establish beyond all doubt that Brazil has become, and will increasingly be throughout the rest of this century, a major new force in world civil aviation.

It also seems likely that Brazil, which entered large-scale aeronautical development only just over a decade ago, may also become a major force in military aviation. It has recently completed an order for its Xavante jet combat aircraft for the Brazilian Air Force and is about to embark upon a more ambitious joint venture with Italy on the development of a light strike jet combat aircraft, the AMX, which will use the Rolls-Royce Spey engine, while it is also embarking upon the development of a new two-seat turbo-propeller training aircraft, the EMB-312 or T-27.

All of these aircraft have come—or will come—from one company—Embraer, Empresa Brasileira de Aeronautica SA. This company was set up in August, 1969, with the shares widely held—10 per cent by the Government and the rest by over 183,000 other companies throughout Brazil.

Embraer dominates Brazilian aviation. The only other companies manufacturing fixed-wing aircraft are the much smaller Aerotec, which builds the A-132 Uikapuru II trainer for the Brazilian Air Force and Neiva, which builds the Universal II basic trainer. Avibras is active across the fields of defence, space, electronics and communications.

Helibras (Helicopteros do Brasil SA), which is jointly owned by Aerospatiale of France and the State of Minas Gerais (45 per cent each) and Aerofoto (10 per cent), is engaged in a 10-year programme involving the assembly and eventually the local manufacture of up to 30 Aerospatiale Lama and 200 Ecureuil helicopters in a new plant at Itajuba in Minas Gerais.

Embraer, however, is the biggest single element in Brazilian aerospace, with about 5,300 employees. From its formation in 1969 up to the end of last year, it had built under licence more than 2,000 aircraft, including a number of light aircraft from the U.S. Piper Aircraft range as well as its indigenously designed Bandeirante (Pioneer) twin-engined 19-seat commuter-airliner — also available in a range of specialist roles — the twin-engined Xingu 8-seat executive transport, the Ipanema agricultural aircraft, and the licence-built two-seat Xavante military trainer/ground attack aircraft.

Popular

The total order book for the Bandeirante now stands at over 360, and this aircraft is proving highly popular in many markets where a light, 20-seat turbo-propellor transport can provide profitable airline services where a bigger jet transport would be too expensive.

Many Bandeirante sales have been made in the U.S. market, but the aircraft is also selling well in the UK, where to date 23 have been sold through CSE Aviation of Oxford, the UK distributor for Embraer products.

UK airlines using the Bandeirante include Air Ecosse, Air Shetland, Air UK, Centreline, Euroair, Fairflight Charters, Jersey European Airways and Loganair, as well as CSE Aviation itself.

Production of the Bandeirante is likely to continue for many years to come. Current output is six aircraft a month, but Embraer is ready to expand this, if demand improves—as many, not only in Embraer, but also in the world airline industry, believe to be likely once the recession has faded.

The commuter airliner market is not a sudden phenomenon, but something that has developed to fill a gap at the lower end of the airline range-payload spectrum, where jets are too big, too expensive and often also too noisy for the local-service and feeder-liner flights that commuter operations involve.

In Embraer's view, this market has come to stay, and it will expand not only in the U.S. and Western Europe, but also in many countries in the developing world where air transport is only now beginning to evolve, and where low costs are of paramount importance.

To complement the Bandeirante, Embraer is now developing the new Brasilia—named after the capital of the country. This aircraft, the EMB-120, is larger than the Bandeirante, at up to 30 seats, but is again a twin-turbo-propeller airliner, using the latest Pratt and Whitney (Canada) engine, the quieter, more fuel-efficient PT 7A-1 of 1,500 shaft horsepower.

Embraer has already logged options for more than 100 aircraft, even before it has flown, from airlines mainly in the U.S., Canada, the UK, France, Australia, New Guinea and Brazil itself. The Brasilia will fly in 1982, and enter airline service in 1984.

Embraer is aiming at an initial production rate of four Brasilias a month, and hopes to sell, on a conservative estimate, at least 250 aircraft through to the mid-1980s, by which time it will have reached break-even on its investment of about $80m in the programme. The current price of the Brasilia is about $3.6m per aircraft.

Complementing both the Bandeirante and the Brasilia is the smaller, twin-engined—also turbo-propeller powered—pressurised executive transport, the Xingu EMB-121, designed for companies who want an aircraft of their own but do not want either the speed or the expense of a jet in today's climate of soaring fuel costs.

This light 8-seater is already selling well, with total sales of over 100 aircraft to date. Current production is two aircraft a month, but Embraer, with its flexible policy towards production, can increase this as demand warrants.

France recently bought 41 Xingus for air force and naval training.

In the military field, Embraer is now developing a new two-seat turbo-prop trainer, the EMB-312 (T-7), which is expected to be one of the company's major attractions at this year's Paris Air Show.

With two prototypes now flying, the company has begun detailed test flying, and has initiated quantity production to meet an order for 168 aircraft from the Brazilian Air Force.

Interest

Already, substantial interest is being shown in the aircraft by countries in the Third World who need a light trainer — that can also serve as a light combat aircraft — that is much less expensive than the jet trainers offered by other major free world manufacturers.

Finally, Embraer is also about to move away from its concentration on turbo-props by participating with Italy in the development of a new light military combat aircraft, the AMX, which will use a new version of the Rolls-Royce Spey military engine. Under an agreement with the Italian Government, the cost of the AMX venture, initially set at $600m, will be split into $400m for Italy and $200m for Brazil.

Italy will buy 200 aircraft and Brazil 100. Each country will have its own assembly line, and each will make specific parts for all the aircraft, shipping them to both assembly lines. Embraer will establish the Brazilian production line at its Sao Jose dos Campos factory, not far from Sao Paulo, and will expect to take on at least a limited amount of additional technical personnel to cope with the programme in addition to its other activities.

A big team of Embraer technicians is in Italy, visiting Aeritalia and Macchi, working out the final details of the financial, technical and work-sharing programmes, which are expected to be defined before the end of this year.

The aim is to start work on the aircraft as soon as possible, so as to get it into service by 1988-89. Already, substantial interest in this venture has been shown by countries in the Third World, and total sales of over 1,000 AMX aircraft are foreseen by the end of this century.

Embraer, founded little more than 11 years ago, is now very much an expanding member of the international aerospace manufacturing community. It is continuing to gain new markets, and to consolidate its position, and it is continuing to develop its existing products and develop new ones.

For a small manufacturer with barely 5,000 employees to undertake the development of three new aircraft—the Brasilia commuter, the two-seat trainer and the AMX jet fighter—is a bold expansion programme.

But Embraer has always been bold—its very foundation in 1969 was a step which at that time raised some smiles in the international aeronautical arena.

Many of those who smiled then have since discovered that they have a tough, vigorous competitor in their midst which has already carved for itself a specialist niche in the commuter airliner field, and now looks like also carving a comparable place in the low-cost military aircraft field.

The Bandeirante twin turbo-propeller airliner (foreground) is one of the most successful aircraft yet built by Embraer, in Brazil. It is to be followed by the larger Brasilia, now under development

Lack of Government continuity means an uncertain future

AUSTRALIA

ROD CHAPMAN

THE AUSTRALIAN aerospace industry is currently passing through one of its not-infrequent periods of uncertainty and lack of direction.

There is the promise of a significant expansion ahead, with Airbus Industrie dangling before Canberra the prospect of joining in a multi-billion dollar consortium to develop a new commercial airliner, but the question of government backing at a time when Prime Minister Malcolm Fraser is trying hard to cut public spending and sell off public enterprises to the private sector is one which may take some time to be resolved.

The industry is about 30 per cent Government-owned, and depends on government policy for about 80 per cent of its workload, so its future can only be resolved by determined government action. The prospect of a substantial expansion of orders arising from recent offset deals may not be enough to set the industry on a new course, expanding the country's technological base and offering new skilled employment opportunities in the two capital cities that need them most, Melbourne and Adelaide.

As Peter Robinson, a former Industrial Policy Adviser to the Federal Government and now a commentator on defence issues, put it: "Far from ensuring the industry will provide a central defence capability and a major source of advanced world technology for Australian industry as a whole, the success of the offset programmes could, without a firm and clear cut government strategy, simply aggravate the present muddle of the industry and its cost to the taxpayer."

Fluctuations

The industry has always suffered from a lack of continuity in government policy towards it and from fluctuations in official procurement policy. But up to the 60s it did manufacture products and use industrial techniques which were close to being comparable with those of any aircraft manufacturer in the world.

Today it is a fragmented industry with capabilities which range from modern milling machines which produce parts for major manufacturers in the U.S. like Boeing and McDonnell Douglas, to the production of almost all the content of older engines like the Avon and Viper.

In airframe manufacturing, the Commonwealth Aircraft Corporation and Hawker de Havilland are working on Mirage and Macchi refurbishment, while the Government Aircraft Factories have the taxpayer-supported Nomad aircraft programme.

In Australia the aerospace industry's position is perhaps the inevitable consequence of the industry's history there.

In the war years of the 1940s all the available capacity was used to turn out aircraft, with the work shared between the Government Aircraft Factory, the Commonwealth Aircraft Corporation and de Havillands. By the mid 1950s this stopped, as Australia was just not buying enough aircraft to justify production, and in the 1960s work was shared out between the three major companies, with, for example, the Mirage fighter programme shared between the GAF and the CAC.

In the 1970s, there was no major defence programme of any consequence. A substitute had to be found which would keep a manufacturing capability for Australia—and that is today's Offset and Australian Involvement Programme.

Through it, the industry has gained millions of dollars of work from Boeing as a result of the purchase of an all-747 fleet by the Government's airline, Qantas.

No pressure

"Through the 1940s, 1950s and 1960s, the primary customer of the industry was the Australian Air Force," said Mr. Peter Smith, Hawker de Havilland Australia's commercial director.

"Frankly, the industry was rather isolated from competitive pressures. We tended to be a bit parochial, and less efficient than our competitors from overseas. So although the Seventies meant a decline in our defence workload, it was a very valuable period for us.

"We were forced to go into the international market place as part of the Offset policy, and we found ourselves faced with the need to become as productive as our competitors. Once we became more efficient we got more work. As we get to the Eighties we find ourselves in a more balanced situation."

So, at the moment, all the local manufacturers are jostling for offset work in the airframe area, which will provide many hours of employment and some new technology.

Last month, Hawker produced the first Australian-made set of wing in-spar ribs for the Boeing 757 jet airliner, and is committed to producing about 300 aircraft sets of these components between now and 1986.

The biggest single programme ahead for the industry is the Government decision—deferred once, but now promised by the end of this year — on a new tactical fighter programme.

Canberra insists the choice is still between the McDonnell Douglas F-18 and the General Dynamics F-16 as the replacement for 75 Mirage fighters, but British Aerospace has not given up hope of selling the Tornado, which has been officially eliminated.

Sir Austin Pearce, chairman of BAe, was in Canberra recently, talking to RAAF chiefs, and he used the opportunity to point out that the Tornado's costs looked more favourable now, and that the developments in the aircraft since its rejection were significant.

But assuming the Australian Government does not defer its decision yet again, the involvement programme for the aerospace industry is critically important.

Said Hawker's Peter Smith: "If you assume that the value of the programme is going to be $2bn, that they are going to achieve a 30 per cent offset, then that is $600m spread over 10 years — or, to put it into context, 20 per cent of the total industry workload.

"The important aspect of involvement in the tactical fighter is there are advanced technologies involved, covering airframe manufacture, engines and avionics."

Pending a final choice, the Federal Cabinet has approved a $25m facility to tool up the Government Aircraft Factories and the Commonwealth Aircraft Corporation for designated work on the new tactical fighter project. Mr. Malcolm Morrison, general manager of the GAF, says he expects transfer of new technology from the TF project to include advanced airframe construction, advanced machinery and bonding work. The project "would stretch us in some areas but we will cope," he said. The CAC's general manager, Jock Dalziel, said it anticipated one of its purchases in tooling up would be a new engine test cell. In terms of staffing, CAC expects its 1,650 employees to rise by 500 to cope with the demand. It has already announced a doubling of its apprenticeship intake.

Other defence decisions in the pipeline include a new basic training aircraft, an advanced jet trainer—BAe is bidding hard to sell the Hawk—as well as two helicopter programmes and an aeroplane for aerial photography, where an adapted HS-125 may be a front runner.

Sir Austin Pearce told the Australian Government BAe would be prepared to transfer a considerable amount of technology to the local industry if it won orders for the Hawk and/or the BAe 146 feeder-liner.

BAe is also bidding for another Australian contract — the nation's communications satellite—in which it will be in a neck and neck race with the Americans. In preparing its bid BAe is laying particular stress on Australian involvement in the manufacture of equipment for ground stations.

But perhaps the biggest challenge faced by the industry is the offer made last month by Airbus Industrie for Australia to join in the development and manufacture of a new 150-seater passenger jet if the European consortium decides to go ahead at the end of this year.

The Airbus offer would involve local industry not only in the manufacture of parts—like wing spar ribs and fuselage components, but also in the design and engineering stages.

There is a presumption that Government-owned airline will follow its purchase of the A-300 by buying the 150-seater to replace its ageing DC-9s, and the contracts would be worth more than $100m by 1985.

Canberra has expressed interest but not commitment—not surprising in view of the fact that it would be expected to advance about $75m to join the project.

Unprecedented

"The Government has never had to face a decision like this before in the industry," said Mr. Smith, "but the only way we can take advantage of the opportunities is if the Government has a policy of supporting such a project."

Airbus Industrie is not the only company involved in new ventures: Boeing has also come to Canberra with new proposals, the details of which remain secret.

Were some of the decisions that are needed from Canberra to be made shortly the Australian industry would be in a buoyant mood. As it is, most people tinge their optimism with apprehension that there will be delays and lost opportunities.

The Fraser Administration has always found it hard to make industrial policy decisions, even when times were good. Such is the level of dissent within the Cabinet, and rivalry between Ministers, that matters that require much easier choices than aerospace are being deferred and delayed.

So the world waits for Canberra.

Modest in size but efficient and profitable

ITALY
RUPERT CORNWELL

THE AEROSPACE sector illustrates at once what is best and what is worst in the Italian way of running an industry. The defect lies, as so often, in the inability of the Government of the day to produce a coherent long term strategy. The strength lies in the capacity of the variety of companies which make up the industry in Italy to do on their own.

If the Italian aerospace industry is modest by European standards—its turnover in 1979 of L1,120bn ($1bn) was less than a quarter of that of the French, Europe's leaders in the sector, and it employs barely a fifth of the 200,000 workforce of the British industry—it is with few exceptions profitable and efficiently run.

Broadly, its recent development has followed two paths: one of concentrating on small and specialised corners of the market, and another on participation in joint ventures with other national industries. The development of the latter is perhaps the most tangible sign of the growing international weight of the Italian aerospace sector.

Anxiety

Yet there is a pervasive anxiety in the air that the time is fast approaching when even an industry as versatile and self reliant as that of Italy will no longer be able to make do without a steady support from the Government.

This is particularly true of research and development backing, ever more essential if Italy is to win full status in the joint ventures which economies have made the pattern of the future, and not operate merely as a subcontractor on projects dominated by others.

There are, it is true, signs that the Government is alive to the problem on the aerospace front. The sector has been earmarked as one of those high technology areas particularly deserving of state aid. But when assistance will arrive, and in what shape is uncertain.

Nor is the question as simple as it might appear. It is perhaps less an issue of money on its own, than of how the industry should be reordered to maximise its effectiveness. One school of thought is expounded by Sig Pietro Fascione, vice-president of the Agusta helicopter and light aircraft concern, which in terms of sales is Italy's largest aerospace company.

He would like to see a broad division of the sector into two: one part specialised in "heavy projects" and presumably under the aegis of Aeritalia, the subsidiary of the IRI-Finmeccanica State-owned group, while the other would concentrate on light aircraft — and presumably revolve around Agusta.

However, so neat a division would be to reckon without the overlaps inherent in the industry, and without the likely misgivings of the smallest concerns, which have been taught by experience that the one guarantee of efficiency and profitability lies in putting as much distance as possible between oneself and the State sector.

In previous years much of the impetus for Italian aerospace came from civilian business (Aeritalia's involvement in the 767 medium range passenger aircraft under development by Boeing, and its increasing — if smallish — involvement in the European Airbus programme are two examples), but the pendulum now seems to be swinging back towards the military side as the main pacesetter, with evident benefits for Italy's burgeoning arms export sales.

Aeritalia has for some years drawn success from its G-222 military transport which has been sold in the Middle East and Asia. Now it is deeply involved in both the Anglo-Italo-German "Tornado" MRCA project, and the AMX, the all-Italian light fighter and battlefield support aircraft, which is due to make its maiden prototype flight next year.

To be built jointly by Aeritalia and Aermacchi, of Varese, the AMX will replace the ageing Fiat G-91 still in service with the Italian Air Force. Its prospects for success, especially in the export field, have been enhanced by the recent agreement signed with Embraer of Brazil. The latter will build the AMX under licence in Brazil, whose own Air Force will take 100 of the new aircraft, against the 180-200 scheduled to be delivered to its Italian counterpart. Full scale production is expected to start in 1986.

Elsewhere on the military front, Agusta has joined a new European joint venture with Westland Helicopters of the UK, to develop a new helicopter to go into service with the navies of the two nations. Siai Marchetti, the light jet manufacturer owned by Agusta, is presenting its new S-211 elementary jet trainer at the Paris Air Show.

Further up the trainer scale, hopes are growing that Macchi's latest MB-339 trainer, derived from the highly successful MB-326 model, will enjoy the export success of its predecessor. The new aircraft is already in service with the Italian Air Force, while Peru has just placed a $70m order for 14 MB-339s.

Military sales abroad however can cause problems, as Agusta is only too aware. The reason for the stagnation of its sales in 1980 at around the 1979 level of L450bn directly reflects the embargo placed on the delivery of CH-47 Chinhook helicopters, made under licence from Boeing of the U.S., in retaliation for the seizure of the Tehran hostages.

Agusta nonetheless remained profitable last year — partly as a result of its success in winning new markets—including Egypt, Morocco, and Greece — to take up part of the slack left by Iran.

Sales up

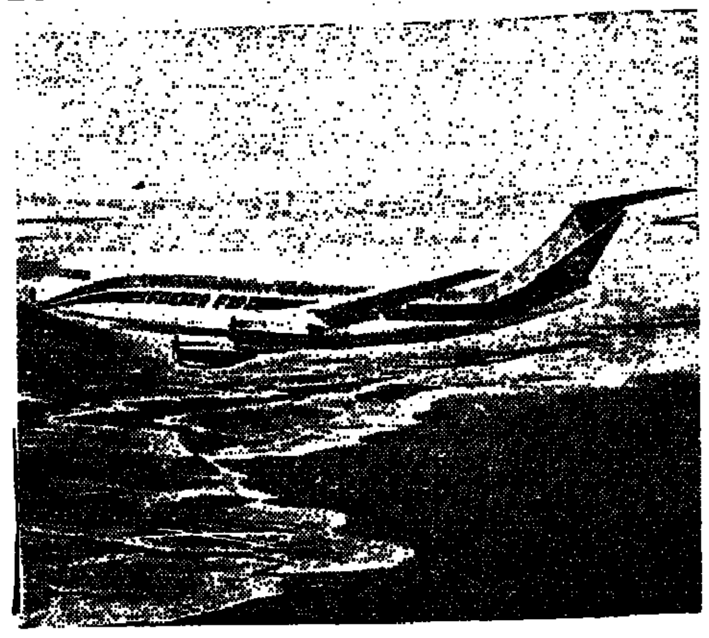
Agusta, indeed, is a rare example of a happy marriage between private and public sectors in Italy. In 1973, Efim, the State conglomerate, bought 51 per cent of the group from its previous owners, the Agusta family. Seven years on, sales have multiplied six times, and the two partners are still in happy harness.

Aeritalia, which is poised to jointly develop with France's Aerospatiale a new 40-seat "commuter" aircraft, the ATR-41, is a good illustration of the financial pitfalls which can affect the aerospace industry in Italy. It registered an operating profit in 1980 of L31.7bn on sales of L227bn ($247m) but this became a deficit of some L4bn, thanks to financial charges of L36bn. Aeritalia's longstanding grievances over delays in Government payments for completed procurement contracts have been compounded by rising interest rates. The result was that the concern's financial charges rose by over L9bn in 1980 alone.

These difficulties thus far have not been shared by companies like Macchi, heavily reliant, like Agusta, on export sales. Both, though, have been able to achieve very high rates of self-financing, thanks in part to securing substantial advance payments from foreign customers, thus bolstering their cash flow. The question remains, however, of how long this comforting state of affairs will go on.

The steady growth of military export markets, to a certain extent underpins the prospects of groups like Aeritalia, Agusta and Macchi. But if Italy is to lift itself truly in to the first division of European aerospace, there is little alternative to greater intervention by the Government in the long run.

The help at last beginning to flow to the steel and chemicals industries is perhaps a pointer that before too long it might just be the turn of aerospace as well.



The Fokker F-29 design is likely to become embodied substantially in the proposed new MDF-100 which Fokker is planning with McDonnell Douglas of the United States

Fokker moves into a new part of the market

THE NETHERLANDS
CHARLES BATCHELOR

FOKKER, THE small Dutch aircraft manufacturer, surprised the aviation world with the announcement in early May that it was to develop a 150-seat airliner with McDonnell Douglas of the U.S. The new aircraft, the MDF-100, should be available to the world airlines at least a year ahead of any rival if the project proceeds as planned.

For Fokker the project represents a major expansion of its activities and a move into a sector of the market which will be hotly contested by the giants of the aircraft world — Boeing and the Airbus consortium. It will be moving out of its traditional markets where its 40-60-seat turboprop F-27 has done so well and where its 65-85-seat jet F-28 has established a useful hold.

The link with McDonnell Douglas — all the more surprising since Boeing had appeared the more likely U.S. partner — represents a major triumph for Frans Swarttouw, Fokker's chairman for the past three years. Mr. Swarttouw, who had no experience of the aviation world before joining Fokker, rejected the European thinking of his predecessor and looked to the U.S. aircraft makers for potential partners.

The MDF-100 has a long way to go before it flies, but the project has taken on a more solid shape in the weeks following the announcement on May 4 that the two companies had agreed in principle to co-operate. Within two weeks the Dutch Government pledged aid of up to Fl 800m ($314m) toward the Fl 2bn estimated development costs.

A question mark remains over Fokker's ability to remain a truly equal partner of McDonnell Douglas in the project. The two companies at present have a half share each, though other risk-sharing partners are welcome. How in practice Fokker gets on with its U.S. partner—which is 14 times larger in terms of turnover and with eight times the number of employees—remains to be seen.

The Dutch company is convinced that it concedes nothing to McDonnell Douglas in the field of technology. Fokker has been working since 1973 on the design of a new medium-haul jet airliner. Originally intended as an extended version of the F-28 and named the Super F-28, the aircraft grew in size and sophistication until it was renamed the F-29. This design will be amalgamated with McDonnell Douglas' proposed DC-11 airliner.

Fokker believes it is ahead of any other aircraft manufacturer with plans for a 150-seat jet. It has spent $75m on more than 6,000 hours of wind tunnel testing and much computer work on the F-29. A new low-drag wing, an advanced turbofan engine, and advanced lightweight composite materials and electronics give a 35 per cent fuel saving per passenger seat over existing jets, the company claims.

Maximum use

The standard version of the F-29 is designed to carry 138 to 156 passengers depending on seat width, while a stretched version offering 162 to 179 seats, could be also made available. The full range of the standard aircraft would be 1,700 nautical miles, allowing scheduled flights of 300-500 miles to be combined with longer charter trips and permitting maximum aircraft use.

The two engines most likely to be selected to power the MDF-100 are the Rolls-Royce RJ-500, developed jointly with Japan, and the General Electric-Snecma CFM-56, both offering upwards of 20,000 lbs of thrust. Pratt and Whitney is also developing an engine which Fokker and McDonnell Douglas are prepared to consider.

Precisely which elements of the F-29 and the DC-11 will go to make up the MDF-100 will be decided by the project co-ordinating office over the next few months. This office, based on Long Beach, California, is to be headed by a McDonnell Douglas executive, assisted by a Fokker man.

If all goes according to plan, the first of the new aircraft will be delivered at the end of 1985 or in 1986. Neither Boeing nor Airbus could match this delivery date on the basis of work done so far on their own 150-seat aircraft, though Boeing is probably capable of catching up if it gave the project priority.

Fokker puts the potential market for this size of aircraft at 1,500 to 2,000 in the period up to 1993, with a similar number required in subsequent years. This market is large enough to sustain one or even two competitors to the MDF-100 and still allow the Dutch-American project to make profits.

Fokker's choice of McDonnell Douglas as a partner is interesting. In the words of Frans Swarttouw: "Co-operating with Boeing would have exposed us to economic pressure, while Airbus would have exposed us to political pressure."

McDonnell Douglas offered the twin advantages of being a privately-owned, commercially-minded company, which had experienced setbacks in its own civil aircraft programme. Problems with the DC-10 had badly dented its image and confidence.

Boeing and Airbus seem less likely to join Fokker in a new aircraft now it has teamed up with McDonnell Douglas, but Fokker believes the Japanese are still interested. The Dutch company has held detailed discussions with Fuji, Kawasaki and Mitsubishi over participation and a decision from Japan is expected soon.

The promise of Fl 800m aid from the Dutch Government is heartening for Fokker, though it is less than the Fl 1bn the company was seeking. The aid is conditional on the company finding sufficient launching customers for the new aircraft and is likely to take the form of a loan to be repaid as royalties on each aircraft sold.

Not a subsidy

Fokker is keen to point out that Government aid does not amount to a straightforward subsidy. The F-27, of which more than 725 have now been sold, has repaid several times over the Government funds provided. The less successful F-28 (total sales 171) has repaid most of the money advanced, but a recent decision to reduce the royalty per aircraft and thus extend the break-even point for the Government to 350 aircraft means the target may not be reached.

The MDF-100 gives Fokker a third civil aircraft programme, the minimum required to guarantee the company's long-term future. In the longer term, when the F-28 is being phased out in the late 1980s, Fokker has plans for an advanced technology turboprop, currently codenamed the FXX.

If the McDonnell Douglas link up were to fail this would be a serious, but not a mortal blow to Fokker. Demand has picked up for the F-27 and F-28 and the company plans to increase production from 12 each a year to 36 and 24 aircraft respectively.

Its trading position has begun to improve since the break-up of the unsuccessful merger with Vereinigte Flugtechnische Werke of West Germany. The small net profit doubled in 1980 to Fl 10m on sales 17 per cent higher at Fl 1.13bn.

Boom will continue beyond the end of the decade

CANADA
KEN ROMAIN

THE CANADIAN aircraft industry is in a period of growth whose momentum is expected to carry it through to the end of the 1980s on current work alone, while future projects could extend the activity to the end of the century.

The initial flush of orders for Canadair's Challenger business jet has flattened as the company works its way out of setbacks on the aircraft but orders continue to arrive with consistent regularity for de Havilland's Dash Seven, Dash Eight and Twin Otter family of commuter-type and utility aircraft.

In the avionics field, CAE Electronics has captured about one-third of the market for commercial airline flight simulators and is holding a comfortable backlog of military simulator orders. Litton Systems (Canada) has delivered its first inertial guidance system for the U.S. Cruise Missile in the intial phase of a $500m programme that could total more than $1.1bn by the end of the decade.

Pratt and Whitney Aircraft of Canada has begun development, with the aid of a $50m Federal Government grant, of the advanced PT-7 turbine engine, more advanced and more powerful than its popular and ubiquitous PT-6 engine which has found its way into an ever increasing number of light utility and transport aircraft.

Spar Aerospace has completed and delivered at a cost of $100m the first Remote Manipulator Arm for the U.S. Space Shuttle, and has obtained an order for three more for delivery in 1982, 1983 and 1984.

Following behind these major companies is a growing host of *sophisticated secondary* and third-tier companies providing sub-contracted components.

On its knees

It has been an amazing comeback for an industry which just over 20 years ago was knocked to its knees by the Federal Government's cancellation of the Avro Arrow fighter, for what was then the Royal Canadian Air Force.

Industry sales last year were a record $2.2bn of which $1.8bn was exported. Sales are expected to exceed $4bn by 1984.

According to the Air Industies Association of Canada, which represents 109 member companies, the export of aerospace products now exceeds the imports of civil airliners, general aviation, *helicopters* and military aircraft.

The association notes that between 1976 and 1980, employment in the industry increased 68 per cent from 25,300 to 42,500 workers—and may well exceed 55,000 by 1984.

In addition, the spinoff from the high technology applications of the industry are finding their way into a growing number of consumer roles.

The association states that the outlook for the industry during the next 20 years is highly favourable, but growth will continue to depend on Government support as in the past for innovation, investment and research and development.

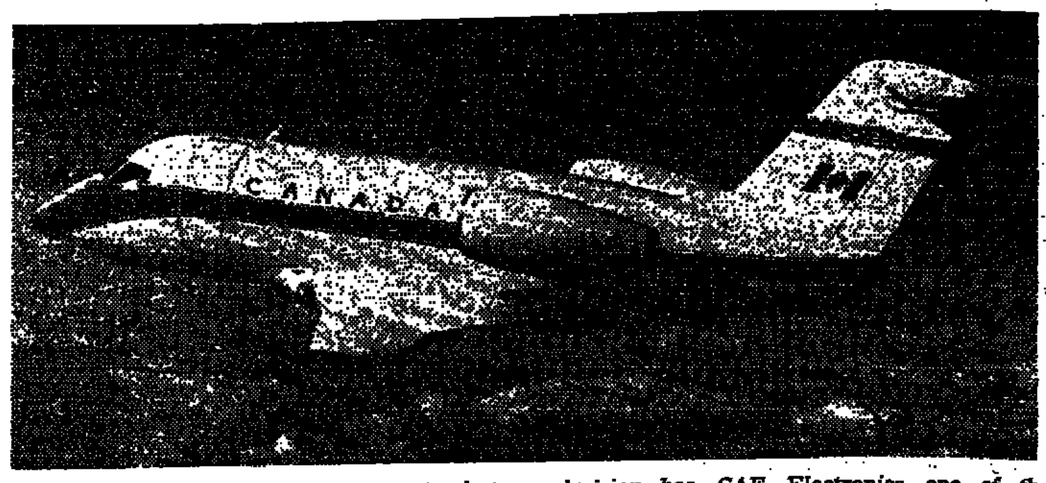
It was the Government move, beginning in 1974, to purchase both de Havilland and Canadair from their U.S. and British owners which became the catalyst for the present activity.

Canadair almost immediately launched its highly successful Challenger business jet, quickly achieving sales even while the aircraft was on the drawing boards. De Havilland moved to the 50-seat Dash Seven airliner which no one seemed to want in the early stages.

Then came "deregulation" in the U.S. The mushrooming of "commuter airlines" which followed, the fuel crisis and suddenly the Dash Seven was the right airliner in the right place.

The demand for a still smaller aircraft made room for the 36-seat Dash Eight, whose orders are also growing, while sales of the 19-seat Twin Otter are projected to reach the 1,000 mark.

On the military side, the offset arrangements on the purchase by the Canadian armed forces of 18 Aurora patrol aircraft from Lockheed of the U.S. will mean the placing eventually of almost $1bn-worth of work in the country, while the purchase of 137 CF-18 fighter aircraft from McDonnell Douglas brought with it a $3bn offset agreement.



The Canadair Challenger business jet is now one of the biggest single aircraft manufacturing programmes in the Canadian aerospace industry

Future programmes

Future military programmes in which the industry will participate directly or indirectly will be the replacement of the armed forces' helicopter fleet and transport aircraft in the 1990s.

By 1985, the Department of National Defence will be spending about one-quarter of its budget on new equipment purchases.

But current activity is almost totally civil in application. Canadair now holds 187 orders on the three variants of the Challenger, both for the Avco Lycoming and General Electric-powered versions and the *stretched* model.

The company has launched a successful programme to get weight out of the aircraft to increase its range, but has again run into a production snag on the Avco Lycoming engine because of late engine deliveries. Because of the engine delay, production of the aircraft is being held to between three and four a month.

So far, 15 "green" aircraft have been delivered. The company's target by year-end was in the "low 50s" but the "low" 40s is now more likely.

Canadair has also sold five of the current batch of CL-215 water-bombers it is now producing.

More favourable news has been the successful completion of contractor flight trials for the Canadair/Dornier CL-289 unmanned airborne surveillance drone. Troop trials are scheduled to begin in December this year and continue to August next year with production expected to begin in 1984.

De Havilland is in the midst of a $75m building and new equipment programe to prepare for the launch of the Dash Eight. The Federal Government is supporting the company with a $450m loan guarantee of which $275m will cover development costs for the aircraft through 1985.

The first Dash Eight is to be delivered in 1984. The Dash Seven is being produced at the rate of three a month with the rate to go to four a month as the market develops. The aircraft also may be stretched to 60 seats but no decision has been made.

The production rate on the Twin Otter is six a month and orders for the aircraft are expected to be received for some time. De Havilland has delivered more than 740 Twin Otters since 1965.

The Buffalo military transport is being built at the rate of one a month and the company is developing a civil version known as the Transporter.

De Havilland has received orders for 125 Dash Sevens and commitments for 96 Dash Eights from 27 companies in eight countries while orders and options for the Twin Otter total 789.

Meeting the increasingly sophisticated requirements for flight simulators has now made CAE Electronics one of the leaders in the field.

Since 1977, there have been 100 orders from commercial airlines for flight simulators of which CAE has received 33, and its nearest competitor 30. Last year it delivered 11 and received orders for seven. CAE has just received a $34m order for three CF-18 flight simulators from the Canadian armed forces. It also has orders for five Tornado simulators from West Germany and two from Italy plus four Agusta Bell helicopter simulators for the Italian armed forces.

With work now started on its next three space Remote Manipulator Arms for the Shuttle, Spar Aerospace is looking at non-space applications of these systems.

Rapid growth for strategic company

SPAIN
ROBERT GRAHAM

THE SPANISH AEROSPACE industry centres round the activities of one State controlled company, CASA.

Though small in scale, compared to that of Germany or Italy, it has been expanding fast and is a strategic industry which the Government is anxious to promote.

There is a strong conviction that Spain can play a valuable part in the international aerospace industry, largely by adapting advanced technology to less sophisticated needs and by evolving its own technology which reflects greater sensitivity to the requirements of developing countries. Pioneering the field in this respect is CASA's C-212 Aviocar—a twin turboprop STOL aircraft for both military and civilian use which has proved highly successful.

CASA was founded in 1923, building under licence early models designed by Breguest of France and Dornier of Germany. Its present structure dates from the early Seventies when the industry was re-organised with the other principal Spanish aircraft concern, Hispano Aviacion, being incorporated alongside the specialised engine manufacturer, Enmasa.

The state holding company, INI, now holds 69.5 per cent of CASA shares. Of the remainder 13.3 per cent is held by Northrop of the U.S., 11 per cent by the German group, MBB, and 0.6 per cent by Avions Marcel Dassaults of France with Banco de Vizcaya and Banco de Bilbao holding a further 5 per cent. Because of the military nature of much of CASA's work the Government has been anxious to ensure control of the company. But, equally, it has been regarded as essential to have foreign capital to provide access to technology in an industry where international co-operation is increasingly close.

Five plants

CASA now operates five plants, three in Madrid and its suburbs, and the rest at Cadiz and Seville —the latter being historically the centre of Spanish aviation. CASA's activities can be divided into three main areas—its own essentially Spanish products, co-operation in international ventures and sub-contracting, and maintenance.

CASA produces two aircraft entirely of its own design, the C-212 and the C-101 jet trainer. The C-212 is a military transport aircraft capable of carrying up to 28 passengers or 2.8 ton loads. It is highly versatile and can be adapted, for instance, to be a small flying hospital or as VIP transport. More than 250 C-212s are now in service in various parts of the world, including the U.S.

The success of this aircraft resulted in the establishment of a $80m joint venture with the Indonesian National Aircraft Company in 1979 to produce an advanced version, the CN-235, for 30-40 passengers.

This is the first time that CASA has embarked on such a venture and it breaks new ground in the Spanish aerospace industry as a whole. CASA's studies estimate that this advanced version, based on the Spanish and Indonesian markets to start with, but conceived for the world market, could have a civil market of 1,800 aircraft between 1984 and 1994 and a further 600 for a military version. The aircraft's first flight is scheduled for late 1983.

The other aircraft designed by CASA is the C-101 jet-trainer, the first being delivered to the Spanish Air Force in March, 1980. This single-engined aircraft can also be used in a ground attack capacity.

Potential

CASA believes that there is an export potential for the trainer since it is conceived as a low cost aircraft, employing advanced technology but refined for less sophisticated users. Its sole competitor is believed to be the Italian Macchi-339, Britain's Hawk trainer being both more costly and sophisticated.

In the field of international co-operation CASA has six principal ventures either as a direct participant or as a sub-contractor. It has a 4.2 per cent stake in *Airbus Industrie*, and the group produces the A-300's horizontal stabilisers, the forward doors and landing gear doors.

With the French Dassault Company, CASA has two ventures. One of these concerns the manufacture of fuselages for the Mirage F-1 fighter, in use with the Spanish Air Force. The other involves the complete wings of the Falcon-10 and some parts for the Falcon-20 executive jet aircraft.

A fourth partner is Boeing. CASA acts as a sub-contractor supplying ventral airstairs and rudder tabs for the Boeing 727 and wing flap sections for the Boeing 757, while McDonnell Douglas has a contract for the supply of DC-9 emergency doors and main landing gear doors plus under-wing fillets and Auxilliary Power Unit doors for the DC-10.

A final military contract involves an association with Germany's MBB to manufacture certain parts for the light helicopter BO-105, 70 of which have been ordered by the Spanish Air Cavalry for use with Hot missiles.

In addition to these activities, CASA does a good deal of maintenance and overhaul for the Spanish Air Force as well as for the U.S. Air Forces stationed in Europe. The U.S. Air Force contract is now 26 years old, and, so far, CASA has overhauled, repaired or modified some 6,000 aircraft.

Taken together, this provided CASA last year with revenue of Pta 17.9bn, up 48 per cent, and Pta 310m profit. Of these sales 54 per cent was accounted for by exports. Sales of the C-212 and the C-101 accounted for almost 45 per cent of the total.

The big question now facing CASA is what new generation combat fighter the Government *will opt to buy* from the U.S. between the F-16 and the two versions of the F-18.

The order involves 144 aircraft, worth some Pta 300bn. The Government is anxious that whatever the choice, there should be a substantial local content.

Kevin Rafferty looks at the divisions within the Bangladesh army which led to the death of President Zia.

A fragile peace is shattered

CIVIL WAR is too grand a description for the blood-letting that now threatens Bangladesh. It seems that the two main elements, the Army generals who assassinated President Zia ur Rahman and the forces loyal to the Zia regime, are determined to slug things out.

But even a *victory for one* side or the other is unlikely to settle the succession or restore the peace.

In poverty-stricken Bangladesh personal ambition is likely *to over-ride the issues.*

Zia's murder brings to an abrupt end more than five years of relative peace. The problem is that although Zia went through all the forms of democracy, restoring civilian rule, establishing a parliament, encouraging political parties, becoming a civilian himself, in reality he ran a virtual one man show. Real power now goes back to the Bangladesh Army which is split by personal ambition and the bloody origins of the country brought into the world by the two midwives, India and Pakistan.

The president's life and death tell much about the sadness and tragedy of Bangladesh. After the Pakistan Army backed down in East Bengal in March 1971, the young Major Zia ur Rahman was the person who first declared to the world the independence of Bangladesh—ironically over Chittagong Radio, now in the hands of the rebel generals.

During the liberation war the major led the Z force, named after him, which was one of the three main active Bangladesh units fighting the Pakistanis. But in the later stages of the war the Bangladeshis had to play second fiddle to the Indian Army. After independence they had to yield positions to the civilian government led *by Sheikh Mujibur Rahman.*

Bangladesh's was a caesarian birth, ripped prematurely from Pakistan. The civilians under Sheikh Mujib had few firm plans, only romantic notions *about independence. When they* got independence they had little idea of how to use it. In spite of massive doses of foreign aid what was then one of the poorest and most unpromising countries in the world became even poorer and more chaotic.

The young liberation soldiers nursed a deep sense of grievance and national pride and began to resent the way politicians *grew rich on corruption.*

"We fought for this country. We did not want to see politicians ruin it," one of the majors who killed Sheikh Mujib told me in 1975.

"We risked our lives while the politicians sat comfortably and cowardly in Calcutta."

More than 90m people are packed into a land the size of England and Wales, a population *density of 660 per sq kilometre*, or 900 per sq kilometre of cultivable land, the highest in the world apart from city States such as Singapore or Hong Kong.

Adult literacy is now 22 per cent. Average food consumption is about 16 ounces a day or less than the bare minimum to sustain a healthy life. More than 80 per cent of children under five are malnourished. About 75 per cent of Bangladesh exports *come from a single* crop, jute, which faces a declining world market. Imports, a mere $3bn, are three times the value of exports.

Zia worked hard enough to try to set things to rights. But even before his assassination he was falling foul of the political realities. One of the realities is that some people are poorer *than others in Bangladesh.*

The President had a safe majority in the National Assembly but he was not a natural politician, and even the discredited old politicians were *able to score points and collect* large groups of supporters.

The culmination of this came a few days ago when Sheikh Mujib's daughter returned from exile in India to be greeted by a crowd that, observers said, rivals any that Sheikh Mujib himself had collected in his heyday.

The President was able to count on his instincts for survival when dealing with the politicians, and by playing on their weaknesses and playing them off against each other.

But it was his old constituency the army which brought about his downfall at the weekend. He had survived at least two coup attempts and there were rumours of others. General Manzoor, the commander of the division based at Chittagong, Bangladeshi's main port, had *caused problems before.*

Like Zia, though *five* years the dead president's junior, General Manzoor is a liberation fighter. He is also an ambitious man, and it was these ambitions *which brought him into conflict* with another rival general and had led to his being posted to Chittagong away from Dacca.

Manzoor has a reputation of being anti-Indian, supposedly because he *saw* the way that India's army soldiers looted when they liberated Bangladesh. There is speculation that the return to Bangladesh of Shiekh Mujib's daughter from India and Indian "gunboat diplomacy" over the control of a tiny disputed island in the Bay of Bengal may have caused him to take action against the president, whom he saw as being too soft on India.

The future now is uncertain. Bangladesh has a large number of intelligent and wily politicians, but they have never been renowned for working together. "Whenever you have two Ben*galis, you have three* political parties," an old saying goes.

In Bangladesh today, the power clearly comes from the barrel of an army gun. But even the army is riddled with factions and interests and ambitious men. The Chief of Staff, Lt.-Gen. Ershad, who is in charge of Dacca, is one of the soldiers who spent the whole of the freedom struggle in Pakistan. For this reason he does not inspire the whole*hearted confidence of many* of the freedom fighters who consider that they should be given preference as they actually fought for the country and risked their lives.

On the other hand the more numerous Pakistan Army returnees consider that they have seniority and training in a more professional army and tend to look down on the ex-freedom fighters.

There are other important divisions besides personal ambition among senior army officers. There may still be a few who would like to see a "people's army" in which ranks would be abolished. Many of these radical elements were weeded out after the first serious coup attempt in 1977. But there are pro-Islamic soldiers and those who want a more *secularist* Bangladesh. There are pro-Indians and anti-Indians.

The close proximity of India is the factor that gives the situation a dangerous edge. *Bangladesh might be dismissed* as unimportant on a world map—though it is the eighth largest country in population terms—but for the fact that India virtually surrounds Bangladesh.

Delhi had a large hand in Bangladesh's creation. It needs a stable and preferably friendly regime in Dacca. Mrs Indira Ghandi may not want to intervene for fear of being sucked *into a bloody mess, but she will* not want to stay out if the mess spills over the border or threatens her own sensitive security.

ZIA—THE DREAMER OF A 'GOLDEN BENGAL'

Zia ur Rahman was always a soldier, even in his political dealings. He had a straightforward middle-class army officer's view of how things should be run. He liked prompt obedience, he could not tolerate dissent, he was quick to suspect a plot if anyone challenged him and he was known to lose his temper with his Cabinet when things were not going well.

Corruption grew under his leadership, partly because political parties needed feeding with funds and politicians saw the chance of lining their pockets, so Zia introduced army officers into key posts in the bureaucracy. This simply antagonised key interest groups on whom he depended. Bureaucrats did not like the intrusion, honest army officers resented the corruption, while dishonest ones were angry that they could not win a greater share of the spoils. In Sheikh Mujib's day Ministers were regarded as amateurs in the field of corruption. What emerged under Zia, according to a former member of the Planning Commission, was a professional milking of the machine by almost everyone in power.

Zia was a likable man, with a strong sense of patriotism and a good dose of common sense. In any other country he would have been part of the conservative middle classes which form the backbone of society. But in Bangladesh, catapulted into the position of ruler, he had to grow into a demanding job.

***Zia had enough feeling for* political realities to know he should somehow steer between Moslem fundamentalists who sought a clash between Bangladesh and *neighbouring India and an* avowed secularism which would antagonise the Moslems in a country which is 90 per cent Islamic.**

But he began to dream. He talked of his determination to double food production so that Bangladesh would not have to import grains to curb the explosive population growth, to set up free trade zones, to increase literacy, to dig canals and to turn the land into the "golden Bengal" which Bengali poets have sung about down the ages. Yet Bangladesh's grinding poverty persisted—even now, *World Bank tables show* that only Kampuchea is poorer.

BANGLADESH'S 10 YEARS OF BLOODY HISTORY

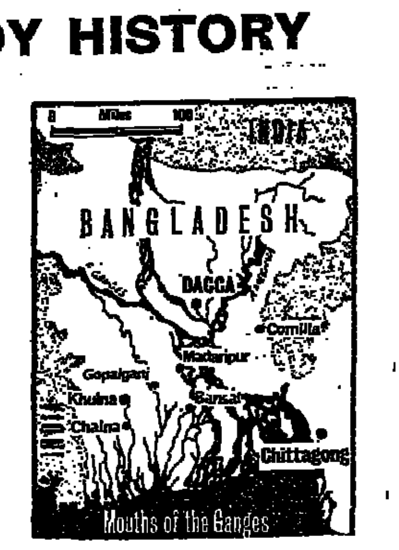
BANGLADESH, THE small country bordering eastern and north-eastern India, has had a bloody history since its inception in 1971. It was created by the splitting of the two wings of Pakistan—then known as West Pakistan and East Pakistan—which lay at the western and eastern ends of the subcontinent separated by nearly 2,000 miles of Indian territory.

The split came after years of dissatisfaction among the Bengalis in the eastern wing with their Punjabi counterparts with whom they had no ethnic, cultural or political affinities. Efforts to keep the two wings together failed after the war between India and Pakistan over Bangladesh *in 1971.*

This ended in Pakistan's defeat and the creation of Bangladesh under the leadership of Sheikh Mujibur Rahman of the Awami *League*—a man *who had long* battled for the independence of Bangladesh.

Mujib, as he was popularly known, had only a brief spell in power. He and his family were assassinated in a bloody coup by the army in 1975 under the leadership of Zia ur Rahman.

In June 1978 Zia consolidated his position with an overwhelming four-to-one Presidential election victory over General M A G Osmany, who had been one of Sheikh Mujib's Ministers. Zia's dominance and popularity were confirmed in February *1979*, when *his Bangladesh* Nationalist Party won 205 out of 300 seats in a Parliamentary election.



Zia governed Bangladesh with an iron hand, establish*ing a virtual dictatorship*, albeit an enlightened one. His spell as the ruler of Bangladesh saw attempts at genuine economic development of what is possibly the most impoverished country in the world.

Yet dictatorship had its own compulsions which ended in the dramatic assasination of the President over the weekend. The troubled country now faces what threatens to be a long period of turmoil and instability.

Letters to the Editor

Upheaval at Lloyd's

From Mr. R. Comery

Sir,—I agree with John Moore's comment (May 23) that the Commons committee's decision on divestment could mean the biggest upheaval Lloyd's has seen in over 300 years. I also believe it will damage this unique institution which operates for the benefit of some 20,000 "names" and 70,000 employees and is such a substantial contributor to our invisible earnings.

The case has not yet been properly argued. Cromer and Fisher heard testimony from an insufficiently representative list of voluntary witnesses. The Commons committee was petitioned by just two dissident "names"—yet over 99 per cent of the 13,000 "names" who took part in the referendum organised by the committee of Lloyd's voted in favour of the draft Bill.

It seems clear that the market is in favour of self-regulation and of the proposed disciplinary procedures. Also there appears to be general agreement in the market on the need for effective segregation of the broking and underwriting functions. It is, however, apparent that there is not yet a consensus on the best method of achieving this segregation, without damaging Lloyd's. No one—Cromer, Fisher or Parliament—has yet consulted senior people from all sections of the market and thoroughly explored all the alternative methods of achieving the desired segregation.

Surely this task can be left to the good sense of the new council of Lloyd's, who know what is required, have already undertaken to consult fully the whole market place and — *pace* the Commons committee — are the only representative body with an adequate understanding of Lloyd's and the insurance business.

I feel most strongly that any decision reached in haste in the present emotive climate will inevitably be bad for Lloyd's and will damage our national interest. The very language in which the debate is currently being conducted is sufficient to illustrate my point. Such terms as "the broker-dominated committee of Lloyd's" are totally divorced from reality—the committee is and always has been composed of an overwhelming majority of working underwriters, whose share-holding or directorship links with the financial groups owning both broking companies and underwriting agencies have in no way converted them into brokers, nor I believe had any influence on them in the discharge of their responsibilities as members of the committee of Lloyd's.

Ronald Comery,
123, Cannon Street, EC4.

Opposition to divestment

From Mr A. Mitchell

Sir, — As a working member of Lloyd's who has been employed in the offices of Lloyd's members and managing agents for some 30 years, and who is currently a *senior* executive of one of the largest agencies, I have made clear on many occasions recently my opposition to mandatory divestment of managing agencies by Lloyd's brokers, whether in part, or as a whole unit to include the members' agency function.

While conceding that, during the past few years there have been deplorable happenings in the Lloyd's market of which none of us within the Lloyd's working community can be proud, nevertheless, I believe that, provided the teeth of Lloyd's Bill are not drawn by purist parliamentarians, a strong council will have the ability to take any necessary disciplinary measures speedily and effectively, to avoid a repetition of these scandals.

I am much against the separation of the members' agency function from that of a managing agency, as *I believe that* this will involve a loss of expertise across the market because many individuals are experts in both fields and because it will mean the unnecessary *demise* of teams of experts in member's and managing agency work who have worked together for many years.

Whatever the final decision, however, on the divestment of managing agencies, I *am sure* that the majority of the Lloyd's community will joint with me when I say that I am absolutely amazed that the Commons committee should decide that man*aging agents should* be precluded from acting as members' agents also.

Such astonishment is not lessened when I read that the reason given for this decision *is that* "the members' *agent* may put names he introduces on syndicates managed by him," as to my mind, these very syndicates are those that the said members' agent will be able to control most *fully*, *for* the benefit of the name concerned! In my experience, a name picks his members' agent on the basis of the latter's reputation and would be most happy to be put *on its own managed* syndicates!

A. C. Mitchell.
26, Hurlingham Road, Bexleyheath, Kent.

A broker's loyalty

From the Managing Director, Scott Hayes Associates

Sir,—At the recent Parliamentary Committee hearings, it was clearly stated that the foremost interest of the broker was towards his client "the assured" and that of the syndicate or insurance company towards its shareholders.

It was never stated in the reports of the hearings, nor within the Fisher Report, where a broker's loyalties lie when the *broker* has received a binder from the syndicate or company and places the assured's business into this.

For the uninitiated, may I explain? The binder/line slip is granted by the syndicate/company to a broker thus allowing the broker to bind, or in fact underwrite, a risk on behalf of the syndicate or company, sub*ject to* the risk written being within the terms and conditions as specified initially upon the slip and later contained within a legal contract between the broker and the syndicate/company. *The* broker, *for* his consideration, receives a commission and possibly a profit commission. There is nothing wrong with the general principal of binders as they allow the syndicate/company *to* obtain business and also eliminate a vast amount of documentation which is carried out by the broker.

The question I wish to raise is that it was clearly stated that the underwriter is the party who writes the risk, but here we have the situation of the broker acting firstly on behalf of the assured and secondly, as the underwriter at the same time. There is a further complication when the broker, as stated already acting for the assured, binds the risk as an underwriter then reinsures the risk on behalf of the syndicate/company who now becomes the assured, to the *reinsurer from whom the broker* receives a further commission.

It has been seen in recent litigation where syndicates/companies have agreed "to front" for brokers in this type of operation. To explain "to front"—this is where an insurance company or underwriting agency would like to accept the original risk but would not be acceptable to the original assured for a variety of reasons: political boycott, not licensed by the DTI for that class of business, security *not acceptable*, non-tribunalised company.

In these circumstances, the producing broker will present a slip to a syndicate/company, explain any of the above and request that they accept this risk as it will be reinsured out 100 per cent through a compli*cated reinsurance programme.* The consideration given to the syndicate is an overriding commission thus, in theory, it cannot but make a profit. The broker, on his part, receives his *commission from the syndicate and* from the subsequent reinsurers.

After the Sasse debacle, Lloyd's decided to try to close the stable door. I feel that it has *not gone far enough and would* like to see the following included in the Lloyd's Bill: an undertaking by the binder holder that he is the agent of the syndicate/company and his *sole responsibility* is towards the syndicate and not the assured; the assured should not be a client of the broker (nor associated companies within a group) neither should a fronting operation be used; and the broker, nor any associated company of the broker, should not be permitted to reinsure any part of the business placed through the binder, nor receive any overriding commission from any other party for an introduction. This again would eliminate a fronting operation.

Leonard Black,
Scott Hayes Associates Ltd.,
8, Burges Terrace, Thorpe Bay, Essex.

What a union endorsed

From the General Secretary Association of Profesional, Executive, Clerical and Computer Staff

Sir,—Without wanting a correspondence between Peter Willsman and myself to become a regular feature of your paper, I *nevertheless feel* bound to correct the impression left by his letter of May 19.

The impression given by that letter—and since picked up in other quarters—is that the 1981 Association of Professional Executive, Clerical and Computer Staff conference inadvertently endorsed the Left Wing line on the method by *which the* Labour Party manifesto should be drawn up and consequently we are engaged in some type of Machiavellian plot to enable us to ignore that fact.

The reality is that we are talking about two issues. The first issue relates to the validity of one sentence of the resolution, which was deliberately not referred to in the debate. In endorsing the executive council's report on the 1980 Labour Party conference and in overwhelmingly voting for a change in the composition of the electoral college, as well as Denis Healey as deputy leader of the Labour Party, the APEX conference was quite clearly *expressing its views on the* Labour Party—views which Mr Willsman would now seek to deny.

The motion has to be considered in the context of the clear decisions of the APEX conference in 1979 and 1980 in rejecting every proposal put forward which supported the proposals of the Campaign for Labour Party Democracy.

The sentence in the motion reads "The manifesto to be drawn up by the NEC and the Parliamentary Labour Party, but final approval to be by the NEC." This is very different from the proposed — and defeated—amendment to clause 5 at last year's Labour Party conference. That amendment sought to remove the PLP entirely from the decision *making (as opposed to consultation)* process.

Quite clearly the APEX resolution has far more in common with the existing constitution than with the proposed changes to it and, therefore, the basis for any conflict on the matter does not exist.

Roy Grantham.
APEX,
22, Worple Road, SW19.

Civil service pay

From Mr J. Underwood

Sir,—Mr D. Carr (May 27) maintains that Civil Service pay rises lag behind those in the private sector. Can someone *please explain why the annual* salary surveys undertaken by the Institution of Electrical Engineers among its membership always show public sector pay to be in the lead? If my memory serves me correctly the average difference reported from the 1981 survey was rather more than £2,000, and "company cars" are not the answer in the engineering industry at least.

Mr Justin D. Underwood.
7 Southlands Close, Wokingham, Berks.

The uprating factor

From Mr D. Easson

Sir,—Like many other civil servants, Mr D. Carr (May 27) suffers from a misguided interpretation of civil service pay research. Under the 1974 agreement the pay research process involves the "uprating" of the data on current salary levels as received by the pay research unit by a factor which depends on the date of settlement for the data and the rate of inflation. Thus, far from never *catching up, the civil servant* may in fact leapfrog ahead of his private sector counterpart. The uprating factor appears to account for more than the disputed difference between 7 per cent and 15 per cent.

D. R. Easson.
25, Gloucester Circus, Greenwich, SE10

Today's Events

GENERAL

Post Office Engineering Union conference opens, Blackpool (to June 5).

Co-operative Union congress opens, Edinburgh (to June 3).

Dr Ghazi Al-Gosaibi, Saudi Arabian Minister of Industry and Electricity, opens Financial Times two-day conference on the role of international companies in Saudi Arabia's development plans, Grosvenor House, W1.

Mr William Rodgers speaks at Social Democratic Party public meeting, Friends Meeting House, NW1.

Financial Times two-day conference opens on Energy Supplies—Feast or Famine? Hilton Hotel, W1.

Mr James Prior, Employment Secretary, meets representatives of People's March for Jobs, House of Commons.

National Society of Prevention of Cruelty to Children publishes annual report.

Exhibition of Seychelles stamps opens, Stanley Gibbons, WC2.

PARLIAMENTARY BUSINESS

See Parliamentary Diary on page 6.

COMPANY MEETINGS

See Financial Diary on page 6.

COMPANY RESULTS

Final dividends: Lesney Products. Sangers Group. Transparent Paper. Wettern Bros. Interim dividends: Martin the Newsagent. Interim figures: Heavitree Brewery.

Search for growth sends Lex off in yet another direction

Terry Garrett looks at the reasoning behind a U.K. motor trader's move into the U.S. electronic components field.

STRATEGY IS a much overworked word at Lex Service Group. Having started life as a basic motor trader the company has been taken up a few blind alleys by management strategy in the past decade. Jumbo-sized airport hotels and employment agencies have featured along the way and there were even talks with Wheeler's Restaurants at one stage.

Most of the diversification moves have fallen by the wayside—Lex is now negotiating for the sale of its last two hotels. Under the stewardship of Mr Trevor Chinn, chairman, the company seemed to be heading back to being a broadly-based motor group with interests in distribution, parts, transport and fork lift truck hire.

Yet last week Mr Chinn announced a major acquisition in a totally new area for the company with the purchase for $48.75m (£23.6m) of Schweber Electronics Corporation, a U.S. electronic component distributor. A U.S. acquisition in itself it hardly surprising: it fits in with the pattern which has emerged over the last couple of years. But an electronics company was not expected.

For some years Lex has had an American presence through its hotel interests. In 1979 it expanded into the U.S. replacement parts market for cars and trucks with the purchase of two California based parts distributors, Chanslor & Lyon and Motor Rim and Wheel, for over $12m. Lex made it clear then that it was not going to stop there and intended to move into industrial parts distribution. Though it does not deal in industrial parts, this is where Schweber fits in.

For Lex, Schweber is a big mouthful to swallow, for its own market capitalisation is under £70m, but it looks an attractive deal all the same. The electronics component market is undoubtedly a long-term growth area and Schweber is the largest private distributor in the country, ranking number four overall.

Sales last year amounted to $170m, profits before interest and tax were $12.14m and $3.67m net, even though the market came under considerable strains in the latter half of 1980. Recessionary pressures built up, hitting demand, while price-cutting competition between distributors became cut throat. Some manufacturers compounded the agonies by franchising too widely in an effort to get their own sales moving, thus leaving more distributors fighting with the same product on price alone.

Yet there are already some signs that the worst is over. The first quarter of 1981 continued rough but sales and new order levels are building up and, while margins are still very tight, by the time Schweber joins the Lex fold later in the year they should be healthier.

Beyond hopes of a recovery this year the future growth curve will not be as steep as in the UK. The U.S. market is more mature, with distributors already taking a much larger slice of the cake than they do here. Nevertheless with Lex buying Schweber on just 13 times 1980 earnings, dented by the downturn, the purchase price looks goood.

Other quoted U.S. distributors stand on multiples of 10 or 11 and those are computed on lower tax charges than Schweber

On the face of it the deal will take some digesting in balance-sheet terms. The $48.75m consideration compares with an underlying asset base of $19.6m and Schweber will be bringing $33m of debt with it.

However in the run up to this acquisition Lex has been busy divesting to raise cash. Hotels have been sold, nearly all the United Carriers holding went, the crane hire division of Harvey was disposed of and the last two hotels currently under negotiation could raise a further £8m.

The message is that by the end of the year capital gearing will not be appreciably worse than the 45 per cent of the last accounts. Moreover the timing of the asset disposals against the $39.75m that becomes payable for Schweber on completion (the rest is spread over the next couple of years) means that interest charges this year could fall below 1980's £8.2m.

Once the two companies have bedded down together it would not be surprising to see Schweber spreading its wings to UK shores. That way Lex could reap the rewards of the fast growing UK market without paying a fancy price for a distributor.

But back to strategy. If Lex's target area for growth is the U.S. it seemed odd to see at the AGM last week that half its interest in Chanslor and Lyon is being sold to Volvo North America, of course Lex, as sole importer of Volvo cars into the UK, has a long standing relationship with the Swedish company.

Meantime in the UK, the base of the business is travelling through tough times. UK registrations of Volvos are holding up well, only 800 down at 15,068 in the first four month of 1981. But sales of the larger 200 series are slowing in anticipation of the new model range. It is the smaller 300 range where sales are buoyant though margins are not so good as on the executive cars. The story is similar from the BL outlets. Commercial vehicles profits are of course, well and truly down. The transport and hire divisions are also making poor returns.

Overall UK profits must slip in 1981 from last year's £20.7m (£28.1m in 1979). There will be little help from the U.S. as Schweber will come too late to make any impact. So it will be up to lower interest costs to put the brakes on the profits slide. A pre-tax figure in the region of £11m to £12m (£12.8m) looks likely with hopes pinned on a recovery in 1982. When the new Volvo range starts rolling off the production line early next year there should be a few more smiles around the Lex head office.

If Lex's corporate strategy seems to have been a moveable feast over the years at least it usually makes money out of its forays into other areas. Employment agencies were the only glaring exception. And shareholders know that they are holding a company whose management is not slow to eject those parts where it cannot see an adequate return and go for what it sees as growth areas for the future.

London Sumatra advises all holders to accept bid

THE BOARD of **London Sumatra Plantations** has recommended that all shareholders accept the offer for their shares from **Harrisons and Crosfields.**

The offer, made on February 19, consisted of 720p in cash for each London Sumatra share or 463 H & C shares for every 1,000 London Sumatra shares held.

The cash offer was closed on March 12 but the alternative share offer went unconditional.

The London Sumatra Board initially advised shareholders who were seeking an increase in income and the additional security of participation in a broadly-based group to accept the share offer but advised against accepting the cash offer.

By May 27, acceptances had been received in respect of 6.8m London Sumatra shares, 42.86 per cent of those issued, which, together with the 7.4m shares already held by H&C, gave it 89.44 per cent of the total.

Sir Arthur Hope-Jones, chairman of London Sumatra, points out to the remaining shareholders, most of whom are private individuals, that there would be a lack of marketability in the shares

JAMES FINLAY

James Finlay and Company, through its U.S. subsidiary James Finlay International Inc., has paid $2.5m for a 43.5 per cent interest in **Sajac International.**

Sajac, a management and warehousing group with operations in Wisconsin, Illinois, Ohio and Oklahoma, turned in a pre-tax profit of $960,000 in the year to March 31 1980.

BOARD MEETINGS

The following companies have notified dates of board meetings to the Stock Exchange. Such meetings are usually held for the purpose of considering dividends. Official indications are not available as to whether dividends are interims or finals and the sub-divisions shown below are based mainly on last year's timetable.

TODAY

Interims: Heavitree Brewery, Martin The Newsagent.

Finals: Lesney Products, Sangers, Transparent Paper, Wettern Brothers.

FT Share Information

The following securities have been added to the Share Information Service:—

International Telephone and Telegraph Corporation (Section: Americans). **Stirling Knitting** (Textiles).

Tunnel fires heavier salvo against Ward

BY REG VAUGHAN

Tunnel Holdings, the cement and chemicals concern, has upgraded its profit and dividend estimates for 1980/81 in a further move to reinforce its rejection of the revised £108m bid from **Thos. W. Ward**, the building materials and engineering group.

In its formal rejection document sent out to shareholders over the weekend Tunnel estimates that profits for the year to March 29 1981 have topped £15.2m. This compares with a forecast of well over £14m made when Tunnel was resisting Ward's first bid (worth £95m) launched in March which gained minimal acceptance. Tunnel's profits in 1979/80 amounted to £10.5m.

And Mr Derek Birkin, the Tunnel chairman, is confident about the current year. He says that although the year has only recently commenced the board is confident that profits, before tax, will exceed those for 1980/81.

In the light of the estimates Tunnel expects to lift total dividends from 9p to 15.5p, with a final of 12p. Mr Birkin points out that under the conditions of the Ward offer, acceptors would not be entitled to the final dividend.

Mr Birkin says that the revised offer is "still totally unacceptable." He says that the board is satisfied that "not only is the whole concept of Ward's offers superficial and potentially detrimental but that the values scarcely represent reasonable Stock Exchange trading prices let alone a premium for control."

Mr. Birkin says that the company has exciting prospects and shareholders should retain their investment "in a well managed and diversified company."

Tunnel has already described Ward's paper offer as "illusory" and in the latest document suggests that Ward shares would be an insecure investment.

He dismisses Ward's claim that the Tunnel share price would fall if the bid fails and it decides to sell its holding. "We believe, on the contrary, that it would be a perfectly feasible operation to place Ward's shareholding through the market," he says.

Mr Birkin claims that if Ward were to succeed in its offer the group borrowings in its balance sheet would be near to 100 per cent of net tangible assets. He says that this does not take account of the increase in borrowings of the jointly owned Ribblesdale brickworks to an estimated £19m to fund its capital expenditure programme or the large investment required at Ketton.

"This can only mean that Ward would have to sell substantial assets or resort to a rights issue."

The figure for Ward's borrowings was disputed yesterday by Mr Mark Smith, a director of S. G. Warburg which advises Ward. He said he could not understand how Tunnel reached a gearing figure of 100 per cent.

Mr. Smith conceded that a lot of money was to be spent at Ribblesdale. But "cash flow was good and strong and likely to take care of that without help from the rest of the group," he said.

"Ward has neither experience nor apparent interest in operations outside the UK. The argument is clearly not only about cement," says Mr Birkin.

Ward has said that its offer will not be increased — the closing date is a week today. Including a further 1 per cent of the votes it picked up through share purchases last Friday Ward has acquired a total of 13 per cent of Tunnel's votes this way. With the stake already held this gave it around 43 per cent of the total votes.

Mr Smith said there had been a willingness to sell to Ward in the market and the directors were hopefully confident about the outcome. Institutions have a large holding in the company, and Mr Smith said that there had been indications that some were minded to accept.

Apart from Ward's purchases there was also heavy buying in the market on Friday at above the bid price of 435p cash. Mr Alistair Defriez, also a Warburg director, said that recently stockbrokers, Hoare Govett, had "done most if not all the buying that we have not done ourselves."

He was not aware of the identity of the buyer. But if 5 per cent or more of the "B" shares were acquired by a single party then the identity of the holder must be disclosed.

SPAIN

1981 High	1981 Low		May 29 Price %
312	251	Banco Bilbao	305
358	280	Banco Central	358
292	229	Banco Exterior	292
292	239	Banco Hispano	282
128	120	Banco Ind. Cat.	123
348	284	Banco Santander	337
189	148	Banco Urquijo	185
328	263	Banco Vizcaya	322
252	204	Banco Zaragoza	232
182	82	Dragados	177
80	45	Espanola Zinc.	80
68	55.5	Fecsa	68
50	22	Gal Preciados	49
72.7	63.5	Hidrola	72.7
62.5	52	Iberduero	59.5
113	70	Petroleos	113
93	70	Petroliber	93
102	71	Sogefisa	71
67	60	Telefonica	67
72.5	60	Union Elect.	72.5

CORAL INDEX

Close: 540-545 (−5)

INTERNATIONAL CAPITAL MARKETS

هكذا من الأصل

INTERNATIONAL BONDS — BY JOHN MAKINSON

German banks bow to the inevitable

WEST GERMAN banks bowed to the inevitable last week and agreed to issue no further DM foreign bonds until late in June at the earliest. After having to withdraw five issues in the previous three weeks, the banks could have been in little doubt about the parlous lack of demand for DM paper.

With the D-Mark still languishing at around 2.30 to the dollar, investors believe that the Bundesbank will retain its tight monetary stance even if short term U.S. rates slip further back. If anything, this year's very high public sector deficit could force a further upward twist in bond yields.

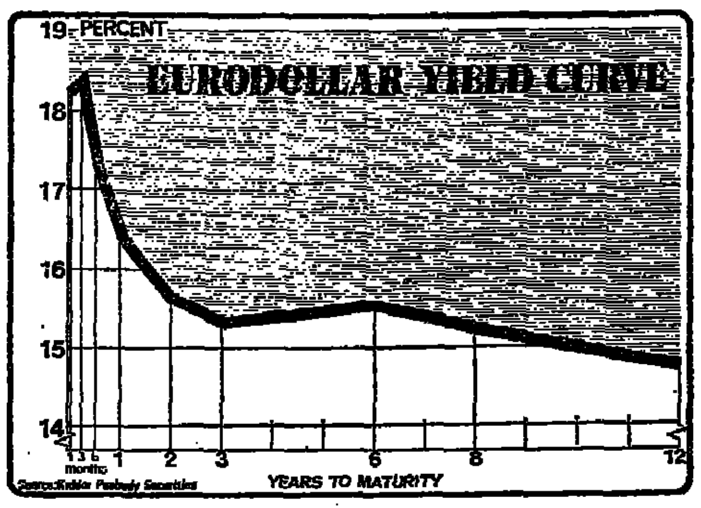
The point was underlined last week when the Federal Government was obliged to withdraw an issue of Kassenobligationen notes on the domestic market. Even news of the issue moratorium and an improvement in the dollar market failed to inject life into international DM bonds which finished the week around ⅜ per cent lower.

The difficulty of placing new paper is creating headaches for the supranational borrowers which are more or less obliged to borrow in a variety of currencies. Some allowance was made for this last week, when the banks made a tentative exception to the moratorium for the European Investment Bank.

The DM market's lack of appeal has confronted German investors with a dilemma. The currency profits they have made on U.S. bonds this year have outweighed their capital losses but there is a real chance the reverse could happen if U.S. rates fall further and the Bundesbank refuses to allow any corresponding relaxation. A similar argument applies to Swiss franc-based investors.

Bond managers in London last week detected some upsurge in institutional demand for straight dollar bonds, but it emanated overwhelmingly from dollar-based funds.

The improvement in sentiment was prompted largely by



the offer of new issues on terms which were variously described as realistic and downright generous. The $175m three year bond for Citicorp carried a coupon of 15½ per cent and, at one stage on Thursday, was being offered at less 1½ to yield over 16 per cent.

In any event, both the Citicorp offering and the $50m issue for Wells Fargo have gone well and the decks should be cleared for more new issues this week.

The test of the market, however, will be whether maturities can be extended beyond the 3 to 5 year range in which they have recently concentrated. The yield curve in the U.S. is now sloping so sharply backwards that borrowers may need to pay some premium over domestic rates to gain acceptance.

The fashion for Canadian borrowers held up last week with a C$50m offering for GMAC Canada. Demand from the Far East helped to prevent the unofficial price from falling below 1½-1¼ even though this left the paper yielding no more than Government of Canada domestic paper.

In the Swiss franc sector, the lack of foreign institutional buyers has left the market dominated by the highly selective breed of private domestic investors. As a result, a wide variation in yield levels has opened up between prime names and less well-favoured borrowers. The Asian Development Bank, which offered a coupon of 7¾ per cent is now trading at around 97¾, while Nippon TT has escaped with only 7¼ per cent, even though both are triple "A" borrowers. As in the DM market, trading was dampened by the Ascension Day holiday and prices were about ⅜ per cent down on the week.

CURRENT INTERNATIONAL BOND ISSUES

Borrowers	Amount m.	Maturity	Av. life years	Coupon %	Price	Lead manager	Offer yield %
U.S. DOLLARS							
‡†European Asian Capital NV	50	1989	8	6Φ	100	Merrill Lynch	6.060Φ
‡Hiram Walker Hldgs. NV	50	1986	5	16	100	S.G. Warburg	16.000
†G.Z.B.	50	1992	11	5¼Φ	100	S.G. Warburg	5.319Φ
‡City of Winnipeg	50	1988	7	15¾	100	Wood Gundy	15.750
†Banco Latino Americano de Expectaciones	30	1986	5	7	100	Manufacturers Hanover	7.123
§Tadano Tekkosho	20						
‡Wells Fargo Intl. Fin.		1996	15	6½	100	Daiwa Securities	6.500
Corp. NV	50	1984	3	15½	99½	Morgan Stanley	15.72
†Grupo Industrial Alfa	70	1988	7	10Φ	100	CSFB	10.514Φ
‡Citicorp	175	1984	3	15½	100	CSFB, Citicorp	15.500
CANADIAN DOLLARS							
‡GMAC Canada	50	1986	5	15⅞	100	Continental Illinois	15.875
SWISS FRANCS							
City of Vienna	100	1991	—	7¾	100	Kredietbank (Suisse)	7.750
‡**§Takasago Perfumery	20	1986	—	4⅝	100	Julius Baer	4.625
STERLING							
‡§Nissan Motor Co.	50	1996	15	6	100	S.G. Warburg	6.060
GUILDERS							
‡**Centrale Rabobank	50	1986	5	12	99½	Centrale Rabobank	12.139
LUXEMBOURG FRANCS							
‡** Renault Acceptance BV	250	1986	5	13¾	100	Kredietbank	13.750
‡Eurofima	500	1988	7	12¼	99½	Kredietbank	12.361
NORWEGIAN KRONER							
‡Eksportfinans	100	1986	5	11½	99	Bergen Bank	11.525
ECU							
EIB	40	1989	6.4	13	100	Kredietbank	13.000

* Not yet priced. ‡ Final terms. ** Placement. † Floating rate note. Φ Minimum. § Convertible.
Note: Yields are calculated on AIBD basis.

CREDITS — BY PETER MONTAGNON

French rating untarnished

FRANCE HAS emerged from the aftermath of last month's presidential elections with its international credit rating manifestly untarnished. Not only have its sales of commercial paper in the U.S. held up well since May 10—French entities have also renewed their interest in tapping the British bankers' acceptance market.

It is understood that one credit line totalling £50m has been arranged in this market since the elections and a further line of about £100m is in the final stages of negotiation.

Bankers acceptances are basically negotiable short-term bills endorsed by the original lending bank and resold in the market place on a discount basis. The effective cost to the borrower is slightly below straightforward Eurocurrency rates, although there is a small commission involved of about ⅛ to ¼ per cent.

Precise details of the operations are still a jealously guarded secret, but their mere existence serves to underline the fact that international markets do remain open to France in the hiatus between the presidential and general elections.

Indeed, there seems to be a growing awareness that France can not only borrow during this period but also insist on the finest possible terms.

Bankers believe that Credit National may still come to the market with a large credit, part of which at least will be denominated in European Currency Units (ECUs), before the general elections. Any delay now is technical rather than political, they say.

As the French franc forms part of the ECU, questions arise as to reserve requirements on the French franc portion of any ECU lending into France. This problem, which is currently the subject of discussion between the French Treasury and the Bank of France, is the main reason why the credit has not already emerged.

Elsewhere in the market Mexico continues to grab the limelight. The $3.5bn bankers' acceptance facility for Pemex, first announced in March, has now been put into syndication by Bank of America, while the United Mexican States has confirmed terms of a $600m, eight-year credit bearing a spread of ⅜-½ per cent over Libor or ¼-⅜ per cent over Prime, margins slightly lower than those obtained recently in the medium-term Eurocurrency market by Mexican state entities.

The credit will be led by Arab Bank Investment, Arab Banking Corp, Banco Exterior de Espana, Banamex, Bankers Trust, BAII, Fuji, Gulf International, Industrial Bank of Japan, Mitsui, National Commercial Bank of Saudi Arabia, and UBAF.

These operations were overshadowed last week by a continuing dispute over final terms of the $1bn credit for Banobras led by Bankers Trust and Bank of America. After syndication was complete the borrower sought a revision of the precise wording covering the conditions of the tranche of this loan which was sold at a margin over U.S. prime rate.

Now it is understood that a compromise solution is on the way and the credit, which has been dogged all along the road by highly acrimonious relations between Banobras and its bankers, should proceed to signing intact.

Venezuela's electric utility Cadafe has meanwhile become the first Euromarket borrower to arrange a credit denominated solely in Special Drawing Rights (SDRs). It is raising approximately SDR 45m — the final amount has to equal its borrowing authorisation of $54m—over six years at a margin of ⅝ over the money market offered rate for SDRs.

Although small, this credit continues the flow of SDR-denominated Euromarket borrowings, and, unlike previous credits in the unit it bears no separate tranche denominated in U.S. currency. It is being led by Chemical Bank International who will syndicate it with a very small group of international banks.

In other news Sweden's $500m prime based Eurocredit led by Chase Manhattan has now been increased to $800m and Spain's electric utility Enher, which is 80 per cent owned by the state-owned INI industrial holding concern, is raising $50m on traditionally fine terms through CCF, Gulf International, and Sumitomo. It is paying a margin of ⅝ per cent for ten-year money and repayments begin after a grace period of 5½ years.

U.S. BONDS — BY DAVID LASCELLES

More a correction than a rally

THE POWERFUL rally in the U.S. credit markets last week has given rise to widespread hopes that interest rates may finally be moving down from the high levels they reached last month. The general expectation seems to be that things will get even better this week, particularly after the encouraging fall in the money supply announced late on Friday. M1A was down $1bn and M1B down $1.2bn.

But the euphoria still seems to be confined to the market itself. Wall Street's prophets of doom have not reversed their view that credit conditions must get even worse in the month ahead, and that even if they do not, there is no reason to expect a lasting rally.

Bankers and investors, who have been singed so many times in the past year and a half, are also being very wary. Only one major bank, Chase Manhattan, cut its prime by half a per cent to 20 per cent last week, although others are expected to follow—possibly as early as today.

The rally was triggered largely by a sharp fall in the key Fed funds rate which was on average 2½ per cent lower than the week before. This pulled down other short rates by a point or more and helped bring bond yields down by a quarter to half a point.

But many analysts think the market is being misled by the Fed funds rate. There is a case for arguing that it only went above 20 per cent the week before because of technical blockages which created an artificial scarcity of funds. So the decline to 17½ per cent last week was not so much a rally as a correction—funds should have traded at that level all the time.

Whether or not the rally was justified, Wall Street is now confronting two possible scenarios.

The bullish one says that record interest rates have had their impact: economic activity is slowing down, so is inflation (at least according to recent consumer price figures). Demand for credit is falling off and, best of all, the Fed seems to be getting the growth of the money supply back under control.

But the bearish view is in its way just as persuasive and is giving jittery investors pause for thought. Seasonally, the money supply is about to lurch up again and this will force the Fed to keep a firm grip on things. Economic activity is a lot stronger than people think, so the demand for credit will be high. Any major rally in the bond market will be self-correcting because it will unloose an avalanche of new issues.

As it is, major corporate borrowers continue to shun the market, though Manufacturers Hanover, the big New York bank, announced a new kind of financing designed specifically to challenge the money market mutual funds. The bank is issuing $100m in seven-year notes. The yield will be adjusted weekly on the basis of the one-month commercial paper rate, making it in terms of cost (though not maturity) much like a commercial paper borrowing. However, the notes will be sold in denominations as low as $1,000 to attract the small investor and give him a chance to enjoy money market yields.

U.S. INTEREST RATES (%)

	Week to May 29	Week to May 22
Fed Fnds wkly. avgs.	17.05	19.50
3-month Treas. bills.	15.24	16.30
3-month CD	17.30	18.75
30-year Treas. bond	13.09	13.48
AAA Utility	15.13	15.38
AA Industrial	14.50	14.75
Visible supply of corporate bonds ($bn)	6.72	5.75

Source: Salomon Bros. and First Boston

FT INTERNATIONAL BOND SERVICE

U.S. DOLLAR STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Am. Air. 15⅞ 88 (WW)	55	100¾	101½	+0¾	+1½	14.98
Amoco 13¾ 88	75	94¾	95⅞	+0½	+1⅜	14.45
CIBC 14½ 84	185	97¾	98¼	0	+0⅜	15.36
CNE 12¾ 91	100	88⅛	88⅝	+0⅝	+1½	15.07
Citicorp O/S Fin. 10 86	300	84	84½	+0⅛	+1⅜	14.58
Citicorp O/S Fin. 12 87	200	89⅛	89⅝	0	+1½	14.62
Con. Illinois O/S 9¾ 86	150	81⅞	82¼	+0⅛	+0⅜	15.04
Dupont Canada 13½ 91	65	94¾	95¼	+0½	+2⅜	14.46
EEC 11 95 (August)	70	77⅜	77⅞	+0⅜	0	14.85
EIB 12¾ 89	75	89⅝	89⅝	+0⅛	+1¼	15.10
Eldorado 13¾ 86	50	93⅛	93⅝	+0⅛	+0⅜	15.25
Elec. de France 10 88	125	79¼	79⅜	+0¼	+1⅜	14.86
Elec. de France 13 88	125	91¾	92¼	+0⅜	+1⅝	14.93
Export Dv. Cpn. 9⅞ 86	150	81½	82	+0⅜	+1⅛	15.23
Fed. Bs. D. 12⅜ 85 (N)	50	91½	92	+0⅛	+1⅛	14.84
Fin. Exp. Credit 10½ 85	50	84¼	84¾	+0½	+0⅞	15.92
Finland, Rep. of 9½ 86	100	79⅜	79⅞	+0⅛	+0⅜	15.85
Ford Credit O/S 14⅜ 83	150	97⅜	98⅛	+0⅞	+0⅞	15.51
Ford Cr. O/S Fin. 16 84	150	102⅛	102⅝	+0⅜	+1⅜	14.77
Gaz de France 13½ 86	80	95⅜	95⅜	+0⅜	+1⅜	14.84
GMAC O/S Fin. 12 87	100	88⅞	88⅝	+0⅝	+1⅜	14.91
GMAC O/S Fin. 12⅞ 88	100	91	91½	+0⅜	+1⅝	14.99
Gen. Mtrs. O/S 11⅜ 87	100	88	88½	+0⅛	+2	14.66
Genstar 14¾ 91	50	98	98½	0	+0½	15.08
GTE Fin. 13⅜ 86 (WW)	50	95¾	96¼	+0⅜	+1	15.02
Hudson's Bay 11½ 90	75	83¾	84¼	+0⅜	+2⅜	14.82
IBM Wld. Trade 12½ 86	200	96	96½	+0⅝	+1⅜	13.34
Newfoundland 13½ 90	60	91½	92	+0⅜	+1⅜	15.23
Nova Scotia 10⅜ 90	50	80¾	81⅛	+0½	+1½	14.67
OKB 10 85	50	85⅛	85⅝	+0⅛	+1⅜	14.97
Ontario Hydro 13½ 91	100	94	94½	+0⅛	+1⅞	14.61
Quebec Hydro 11½ 92	100	80⅞	81⅜	+0⅝	+2⅜	15.11
Queb. Hy. 13 91 (WW)	100	88½	89	−0⅛	+0½	15.29
Royal Bk. Canada 14 86	100	97	97½	+0⅛	+1¼	14.80
SNCF 12⅞ 85	50	92⅞	93⅜	+0⅛	+1⅛	14.78
SNCF 13 91	75	90½	91	+0⅜	+1	14.82
Sth. California Ed. 14 87	50	96⅝	97⅛	+0⅜	+1⅛	14.80
Sven Handelsbk. 13⅝ 88	45	92½	93	+0¼	+0⅜	15.51
Sweden 12⅞ 85	150	90⅞	91⅜	0	+0⅝	15.33
Swed. Ex. Credit 12 83	50	92⅞	93¼	+0⅛	+0⅜	15.70
Swed. Ex. Credit 13 86	75	90⅛	90⅝	+0⅛	+0¼	15.99
Toronto-Dom. Bk. 14 84	50	96⅛	96⅞	0	+0¼	15.49
Tribune O/S Fin. 14 86	50	95⅜	95⅞	0	+0⅞	15.30
World Bank 9¾ 85	200	84½	85	+0⅛	+0⅜	15.04
World Bank 10⅜ 87	300	81¾	82¼	0	+0⅞	14.97

Average price changes... On day +0⅛ on week +1⅛

DEUTSCHE MARK STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Asian Dev. Bank 10 91	100	97	97⅜	−0⅛	−0⅜	10.43
Austria, Rep. of 8¾ 92	150	84½	85⅛	−0⅜	−2⅛	10.59
CECA 7⅞ 92	150	†86⅛	87	0	−0⅛	9.89
CECA 10 91	120	†98½	99¼	+0⅛	−0⅛	10.17
CII-Honeywell 8½ 90	125	†88½	89¼	+0⅛	−0⅞	10.30
Council of Europe 10 91	100	97½	98¼	+0⅛	+0½	10.34
EIB 8½ 90	200	87⅞	88⅝	+0⅜	−0½	10.51
EIB 10½ 91	200	†99¾	100½	+0⅛	+0⅛	10.47
ESCOM 9¾ 87	100	91	91½	0	+0⅛	11.18
Finland, Rep. of 10 89	100	96⅞	97⅞	0	0	10.52
Iberduero SA 9 90	100	†90	90⅜	−0⅛	−0⅜	10.69
Ind. Bk. Finland 8½ 90	50	†88	88⅜	−0⅛	−0½	10.48
Int.-Am. Dv. Bk. 10 91	100	†99	99⅜	+0⅛	+0½	10.09
Japan Air Lines 8⅞ 87	100	88⅜	89½	0	−0⅜	10.50
Japan Dev. Bank 7⅞ 87	100	85½	86¼	0	−1⅝	10.83
Kobe, City of 8 90	100	84⅞	85⅞	−0⅜	−2	10.60
Midland Int. Fin. 8½ 90	180	88⅜	88⅞	+0½	−0⅞	10.47
Nuclebras 9¾ 88	100	†88¼	89	+0⅛	−0⅛	12.16
OKB 8¾ 92	150	†84½	85¼	−0¼	−1⅜	10.63
Oslo, City of 8¾ 90	80	91⅝	92½	+0⅝	−1¼	10.16
Venezuela, R. of 9¾ 90	150	92½	93¼	0	−0⅛	10.98
World Bank 8 90	700	84¼	85	0	−0⅞	10.70
World Bank 10 86	150	99⅝	100⅛	0	−0⅜	9.99

Average price changes... On day 0 on week −0⅜

SWISS FRANC STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Aeroport Paris 6½ 91	60	93	93¼	−0⅜	−1⅛	7.51
BFCE 6½ 91	100	†94	94¾	0	−1⅛	7.32
Bayer Int. Fin. 5¾ 92	100	88	88¾	−0⅛	+0⅛	6.79
Bergen, City of 6½ 91	40	98½	99⅛	+0⅛	−0⅜	7.00
Bhmn.-Tetterode 7 90	40	†88	98½	0	−0½	7.27
CECA 6¾ 91	80	94¾	95	+0¼	−0⅛	7.60
Denmark 5¾ 90	80	86¾	86½	0	−1⅜	7.90
Doma Petroleum 5¾ 91	100	92¼	92½	−0⅜	−0⅜	6.85
Elet. de France 5¼ 90	100	†86	87	+0⅛	−2⅜	7.29
Eurofima 5⅜ 92	80	†98	99	0	0	5.93
F. G. H. Hypo. Bk. 6 90	50	90½	90⅜	+0⅛	+0⅜	7.46
Finland, Rep. of 5⅜ 90	80	85½	85⅜	0	−0⅛	7.87
Franc. Petroles 6½ 91	80	93	93¼	−0⅛	−2⅜	7.51
Genstar 7 91	100	99⅞	100⅛	0	0	7.00
Int.-Amer. Dv. Bk. 7 91	100	97⅜	98	0	+0⅛	7.31
Japan Dev. Bank 5¾ 90	100	92¼	92⅝	−0⅜	+0¼	6.87
Mt. Blanc Tunnel 5½ 90	60	86¾	87	+0⅜	+0⅛	7.51
Newag 5¾ 90	80	90½	90⅜	+0⅜	+0⅛	7.25
OKB 7 93	100	98⅝	98⅞	0	+0⅜	7.16
Oslo, City of 5⅞ 90	80	89⅜	89½	+1⅝	+0⅜	7.48
Philips Lamps 5¾ 92	100	85½	85¾	−0½	−2	7.16
Swed. Ex.-Cred. 7¼ 91	75	96½	96¾	−0½	−1	7.75
Trade Dev. Fin. 6½ 90	50	†92½	93	+0⅛	+1½	7.21
Voest-Alpine 6⅜ 90	80	87½	88	+0⅜	+0⅜	7.63
World Bank 6 91	100	91½	92	+0⅜	+0½	7.20
World Bank 7 90	100	100½	100¾	+0⅛	+0⅜	6.90

Average price changes... On day +0⅛ on week −0⅞

YEN STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Asian Dev. Bk. 8⅜ 91	15	97⅜	98⅛	+0⅛	−0⅞	8.51
Australia 8½ 88	20	85½	86½	0	−2⅛	9.40
EIB 7⅞ 89	12	91⅜	92⅜	0	−0⅝	9.11
Finland 5.6 83	10	90⅝	91⅝	+0⅛	−1⅛	9.81
Finland 6.8 88	10	86⅝	87⅝	0	−0½	9.41
Finland, Rep. of 8¼ 87	15	97⅞	98⅞	+0⅛	−0½	8.73

Average price changes.. On day +0⅛ on week −1

OTHER STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Bell Canada 10¾ 86 C$	55	86⅛	87⅝	0	+1⅛	14.39
CIBC 13½ 85 C$	50	95	97	+0¼	+2⅛	14.90
CIBC 11½ 85 C$	60	88	89	0	+0⅜	15.44
Federal Dev. 11½ 90 C$	60	†81¼	82¼	0	+0⅜	15.32
Fst. Can. Inv 10 84 C$	50	†85¾	86⅜	0	+0⅜	16.19
R. Bk. Canada 10 86 C$	40	89¼	90¼	0	+0⅝	12.92
Tordom Cpn. 13½ 85 C$	30	†93½	94½	0	−0⅜	15.63
M. Bk. Denmk. 9 91 EUA	25	89½	90⅜	0	0	10.59
SOFTE 11⅛ 89 EUA	40	87⅜	88½	0	−1⅛	10.59
U. Bk. Nwy. 9½ 90 EUA	18	96	97⅜	0	−0⅜	10.08
Algemene Bk. 10½ 86 Fl	60	95	95½	−0⅛	−0½	11.57
Bk. Mees & H 10 85 Fl	75	94½	95⅛	−0⅜	−0⅜	11.59
Heineken NV 10 87 Fl	100	93½	94	+0⅛	−0⅜	11.46
Nat. Nedrlnd 10 88 Fl	60	93	93½	+0½	+0⅛	11.48
Ned Midd. Bk 10 85 Fl	75	94	94½	−0⅞	−1⅜	11.74
Pierson 10½ 86 Fl	50	94⅞	95⅜	−0⅛	−0⅞	11.61
Air France 14½ 86 FFr	200	92¾	93⅛	−0⅛	−0⅜	16.75
Bk. America 14½ 86 FFr	250	92½	93⅛	−0⅛	−0⅝	16.79
Charb'nages 13⅞ 85 FFr	400	91⅜	92¼	+0½	+0⅛	16.51
EIB 14½ 88 FFr	300	90⅜	91⅛	−0⅞	−0⅞	16.49
La Redoute 14⅜ 85 FFr	125	90⅝	91⅝	−0⅜	+0⅜	17.25
OKB 14 86 FFr	400	91⅛	92¼	+0⅛	+0⅞	16.59
Solvay et C. 14¾ 86 FFr	200	99	100	0	+0⅛	14.85
Swed Ex. C 14⅜ 86 FFr	250	92⅝	93⅝	−0⅜	+1⅜	16.76
U. Mex. Sts 14 85 FFr	150	92½	93½	−0½	+0½	16.52
Acona 14 85 £	20	94	94¾	0	−0¼	15.75
Beneficial 14¼ 90 £	20	89¼	90	0	−0¼	16.42
BNP 13½ 91 £	15	92	92¾	+0⅛	−0⅝	15.00
CECA 13½ 88 £	20	93¼	93⅞	0	−0⅞	14.96
Citicorp O/S 13½ 90 £	50	93¾	94½	+0⅛	+0⅛	14.70
Fin. Ex. Cred. 13⅜ 86 £	15	94⅞	95⅜	0	−0⅛	15.17
Gen Elec Co. 12½ 89 £	50	90⅛	90⅝	−0⅛	−0⅜	14.62
Hiram Walker 14¼ 86 £	25	95⅝	96⅛	+0⅛	−0⅛	15.44
Privatbanken 14½ 88 £	12	94¼	95	0	−0⅜	15.81
Rothschild 14¼ 90 £	12	95⅛	95⅞	+0⅛	−0⅜	15.15
Royal Trustco 14 86 £	12	95⅜	96½	+0⅛	−0⅜	15.15
Swed Ex. Cr 13⅜ 86 £	20	95½	96¼	+0⅛	−0½	14.97
Banobras 8¼ 90 KD	7	†90	90½	0	0	9.95
CCCE 8¼ 91 KD	10	†82¾	83¼	0	0	11.04
Sonatrach 8½ 90 KD	12	†93	93½	0	0	9.66
Akzo 9¼ 87 LuxFr	500	85¾	86¾	0	−0¼	12.49
Euratom 9¼ 88 LuxFr	500	87⅜	88⅜	0	−0⅜	12.52
Eurofima 10½ 87 LuxFr	500	91½	92½	−0⅛	−0⅜	12.38
EIB 9¾ 88 LuxFr	600	89⅞	90⅞	−0⅛	−0¼	11.90
Volvo 9¾ 87 LuxFr	500	86¾	87¾	0	−0¼	12.75

FLOATING RATE NOTES	Spread	Bid	Offer	C.dte	C.cpn	C.yld
Allied Irish Bank 5¼ 87	0¼	99¼	99⅝	2/7	16⅝	16.71
Bank of Montreal 5¼ 90	0¼	99½	100	18/6	19½	19.55
Bank of Tokyo 5¼ 89	†0¼	98½	98⅞	25/7	16½	16.75
BBL Int 5 86	0⅛	99⅝	100⅛	20/11	18.31	18.34
BNP 5½ 88	†0¼	98⅞	99⅜	29/7	16.44	16.58
CNT 5¼ 86	§0½	99⅛	99⅞	16/10	16.81	16.88
Christiania Bk 5½ 91	†0¼	98⅛	98⅝	5/8	17.31	17.58
Citicorp O/S F. 84	†0	99¼	99¾	30/6	18⅞	18.97
C. Itoh 5¾ 87	0¼	98⅞	99¼	18/9	15.44	15.59
Co-operative Bk. 5 86	0¼	99⅞	100⅛	15/11	19.56	19.59
Den Norske Credit 5 90	†0¼	98¾	99¼	5/8	17.31	17.49
Genfinance 5½ 87	0¼	98¼	99⅛	30/10	16.94	17.11
Giro und Bank 5¼ 91	†0⅞	98⅜	98⅞	23/6	14.06	14.26
GZB 5½ 89	†0¼	98⅜	99⅛	1/8	17.31	17.49
Ind. Bank Japan 5¼ 87	0¼	99	99½	15/10	17.06	17.19
Ind. Bank Japan 5¼ 88	0⅝	98⅝	99⅛	9/10	16.44	16.82
Lloyds Eurofin 8 90 £	0⅛	96⅝	97⅛	3/7	14½	14.96
Lloyds Eurofin 5¾ 92	0¼	99	99½	4/6	17⅜	17.38
LTCB Japan 5¼ 86	0¼	99¼	100¼	13/6	20.19	20.19
Man. Hanov. O/S 5¼ 94	§0⅛	99⅛	99⅝	30/8	19.06	19.18
Merrill Lynch O/S 87	0⅛	100⅛	100⅞	7/8	20.44	20.31
Midland Int. Fin. 5¼ 92	0¼	99	99½	5/6	17.19	17.32
Midland Int. Fin. 9 91	0¼	98	98½	30/10	16.81	17.11
Nacional Fin. 6¾ 86	0⅜	99⅛	99⅝	25/7	17⅜	17.86
Nacional Fin. 5½ 88	0⅜	96⅞	97½	25/9	14⅞	15.35
Nat. Bk. Canada 5¼ 88	0¼	97⅜	97⅞	24/3	14½	14.85
Nat. West. 5¼ 94	§0⅛	97½	98	14/10	16.19	16.56
Nat. West. 5¼ 92	§0¼	97⅝	98⅛	23/10	16.81	17.18
Pemex 6 91	0¼	97	97½	8/10	15.31	15.75
Sparebanken 6 87	0⅜	99⅛	99⅝	19/6	19⅞	20.00
Standard Chart. 5¼ 90	0⅜	98⅛	98⅞	3/9	17.06	17.30
Svenska Hndlsbk. 5 87	0⅛	99½	100	15/7	17.31	17.86

Average price changes... On day 0 on week +0⅛

CONVERTIBLE BONDS	Cnv. date	Cnv. price	Bid	Offer	Chg. day	Prem
Bow Valley Inv. 8 95	4/81	23.12	97⅞	99¼	+0⅛	19.91
Canon 6½ 95	1/81	829	170	171½	+1⅞	−1.79
Credit Suisse 4¾ 93	10/79	1236	82	84	0	0.98
Digicon Fin. 8½ 95	10/81	29.5	112½	114	−1	0.48
Fujitsu 5½ 96	7/81	732	103¼	104¼	−0⅜	8.21
Hanson O/S Fin. 9½ 96	8/81	2.74	92⅜	93⅜	+0½	2.58
Ina Overseas 8¾ 2000	4/81	42	110	111½	+0⅞	0.03
Inchcape 8 95	2/81	4.55	83½	84⅜	−0¼	−0.60
Kotobukiya Co. 7 96	4/81	619	†96⅝	97¼	−0¼	−3.41
Marion Int. Fin. 9 95	12/80	15.5	84⅛	85⅛	−0⅛	28.16
Matsushita El. 7½ 95	11/80	590	99⅝	100⅝	+0⅞	4.19
NKK 8½ 96	7/81	186	104½	105⅜	+4⅜	6.40
Ricoh 6⅞ 95	8/80	604	127½	128½	−0⅞	−2.39
Sumitomo M. Ind. 7 95	2/81	181	152	153	+10⅜	4.94
Swiss Bk. Cpn. 6⅞ 90	9/80	200	72	74	0	28.09
Taylor Woodrow 8½ 90	1/81	4.94	102⅞	103⅞	−0⅛	−0.07
Tokyu Land Cpn. 7¾ 96	4/81	325	99¼	100¼	0	8.64
Transco Int. 8¾ 90	2/81	68	86¼	87½	0	23.72
Tricorp 8½ 95	12/80	31.25	85½	88	+0⅝	5.89
Union Bk. Switz. 5 89	2/80	70.79	71	73	0	0.99
Fujitsu 5 84 DM	7/79	431.5	186⅞	187⅞	+0½	−3.87
Sharp Cpn. 5½ 88 DM	9/80	595	185⅞	186⅞	−0¼	−0.84
Uny Co. 6½ 85 DM	11/79	879.3	113	114	+4⅛	1.71

EUROBOND TURNOVER
(nominal value in $m)

	Cedel	Euro-clear
U.S. $ bonds		
Last week	1,027.5	2,699.9
Previous week	821.1	2,826.0
Other bonds		
Last week	244.5	336.5
Previous week	285.1	330.8

* No information available—previous day's price.

† Only one market maker supplied a price.

STRAIGHT BONDS: The yield is the yield to redemption of the mid-price; the amount issued is in millions of currency units except for Yen bonds where it is in billions. Change on week = Change over price a week earlier.

FLOATING RATE NOTES: Denominated in dollars unless otherwise indicated. Coupon shown is minimum. C.dte = Date next coupon becomes effective. Spread = Margin above six-month offered rate (‡ three-month; § above mean rate) for U.S. dollars. C.cpn = The current coupon. C.yld = The current yield.

CONVERTIBLE BONDS: Denominated in dollars unless otherwise indicated. Chg. day = Change on day. Cnv. date = First date for conversion into shares. Cnv. price = Nominal amount of bond per share expressed in currency of share at conversion rate fixed at issue. Prem = Percentage premium of the current effective price of acquiring shares via the bond over the most recent price of the shares.

The list shows the 200 latest international bonds for which an adequate secondary market exists. The prices over the past week were supplied by: Arab Company for Trading Securities SAK; Kredietbank NV; Credit Commercial de France; Credit Lyonnais; Commerzbank AG; Deutsche Bank AG; Westdeutsche Landesbank Girozentrale; Banque Generale du Luxembourg SA; Banque Internationale Luxembourg; Kredietbank Luxembourg; Algemene Bank Nederland NV; Pierson, Heldring and Pierson; Credit Suisse/Swiss Credit Bank; Union Bank of Switzerland; Akroyd and Smithers; Bankers Trust International; Credit Commercial de France (Securities) London; Citicorp International Bank; Daiwa Europe NV; Deltec Trading Company; EBC; First Chicago; Goldman Sachs International Corporation; Hambros Bank; IBJ International; Kidder Peabody International; Manufacturers Hanover; Merrill Lynch; Morgan Stanley International; Nikko Securities Company (Europe); Orion Bank; Salomon Brothers International; Samuel Montagu and Co.; Scandinavian Bank; Societe Generale Strauss Turnbull; Sumitomo Finance International; S. G. Warburg and Co.; Wood Gundy.

Closing prices on May 29

WORLD STOCK MARKETS

NEW YORK

CANADA

HOLLAND

HONG KONG

JAPAN

ITALY

NORWAY

SWEDEN

SWITZERLAND

GERMANY

AUSTRALIA

SOUTH AFRICA

BRAZIL

TEL AVIV

SINGAPORE

AUSTRIA

BELGIUM/LUXEMBOURG

FRANCE

DENMARK

Indices

NEW YORK —DOW JONES

	May 29	May 28	May 27	May 26	May 22	May 21	1981 High	1981 Low	Since Cmpil't'n High	Since Cmpil't'n Low
♦Industr'ls	981.75	994.25	985.14	983.86	971.72	976.69	1024.05 (27/4)	951.57 (13/2)	1051.70 (11/1/73)	41.22 (2/7/32)
H'me B'nds	60.06	59.69	69.47	69.70	58.97	68.80	65.78 (15/1)	58.37 (7/5)	—	—
Transport.	435.79	437.97	435.81	428.51	428.55	426.78	447.58 (16/4)	379.19 (20/2)	447.38 (16/4/81)	12.25 (8/7/32)
Utilities	107.67	107.56	107.60	107.53	106.81	106.98	117.81 (5/1)	103.99 (5/5)	165.32 (20/4/69)	10.5 (28/4/42)
TradingVol 000's	51,860	59,500	56,730	42,780	40,710	46,820	—	—	—	—

♦Day's high 1003.15 low 985.44

Ind. div. yield %	May 22	May 15	May 8	Yearago (approx
	5.77	6.81	5.71	7.10

STANDARD AND POORS

	May 29	May 28	May 27	May 26	May 22	May 21	1981 High	1981 Low	Since Cmpil't'n High	Since Cmpil't'n Low
‡Indust'ls	149.50	150.61	151.16	150.04	148.32	146.93	157.02 (6/1)	145.73 (2/2)	160.96 (28/11/80)	3.52 (30/6/32)
Composite	132.59	133.46	133.77	132.77	131.33	131.75	138.12 (6/1)	126.58 (20/2)	140.52 (28/11/80)	4.40 (1/6/32)

Ind. div. yield %	May 27	May 20	May 13	Year ago (approx
	4.62	4.67	4.70	5.30
Ind. P/E Ratio	9.37	10.81	9.91	7.77
Long Gov. Bond Yield	13.01	13.22	13.72	10.15

N.Y.S.E. ALL COMMON

May 29	May 28	May 27	May 26	1981 High	1981 Low
76.98	77.44	77.58	77.05	79.14 (6/1)	72.45 (20/2)

Rises and Falls	May 29	May 28	May 27
Issues Traded	1,937	1,922	1,931
Rises	770	899	1,033
Falls	800	649	537
Unchanged	367	374	361
New Highs	—	149	127
New Lows	—	21	22

MONTREAL

	May 29	May 28	May 27	May 26	1981 High	1981 Low
Industrials	406.17	407.95	409.56	405.56	409.56 (27/5)	356.26 (20/2)
Combined	375.10	374.77	375.15	370.85	375.19 (27/5)	339.34 (20/2)
TORONTO Composite	2571.2	2376.3	2377.8	2582.6	2578.6 (16/4)	2161.4 (20/2)

	May 29	May 28	May 27	May 26	1981 High	1981 Low
AUSTRALIA						
All Ord. (1/1/80)	713.3	711.6	711.2	715.6	737.5 (6/4)	641.1 (17/2)
Metal & Minris. (1/1/80)	623.8	621.1	619.2	622.5	735.2 (7/1)	554.8 (5/5)
AUSTRIA						
Credit Aktien (2/1/62)	60.54	(c)	61.19	61.40	66.43 (6/1)	60.54 (29/5)
BELGIUM						
Belgian SE (31/12/63)	(c)	(c)	74.61	74.62	86.16 (17/2)	74.11 (22/5)
DENMARK						
Copenhagen SE (1/1/73)	111.87	(c)	112.51	112.54	112.64 (26/5)	95.38 (2/1)
FRANCE						
CAC General (29/12/61)	86.30	(c)	88.0	90.1	112.5 (17/3)	86.5 (19/5)
Ind Tendance (31/12/80)	85.20	(c)	86.5	88.4	106.8 (13/3)	85.1 (19/5)
GERMANY						
FAZ-Aktien (31/12/58)	226.72	(c)	226.97	228.07	234.8 (24/4)	215.86 (8/2)
Commerzbank Dec. 1953	696.10	(c)	696.1	700.7	727.7 (27/4)	666.4 (16/2)
HOLLAND						
ANP-CBS General (1970)	92.0	(c)	92.4	92.1	95.6 (18/5)	86.7 (2/1)
ANP-CBS Indust. (1970)	71.8	(c)	71.1	70.9	72.9 (28/4)	62.8 (2/1)
HONG KONG						
Hang Seng Bank (31/7/64)	1667.54	1624.34	1638.27	1655.55	1667.54 (29/5)	1295.44 (11/5)
ITALY						
Banca Comm. Ital (1972)	285.66	285.04	279.66	272.14	287.55 (21/5)	175.38 (6/1)
JAPAN						
Dow Average (16/5/49)	7539.69	7602.03	7529.20	7576.18	7674.19 (30/4)	6956.52 (13/3)
Tokyo New SE (4/1/68)	559.07	655.58	667.47	551.65	661.65 (26/5)	495.79 (5/1)
NORWAY						
Oslo SE (1/1/72)	114.48	(c)	114.73	116.02	127.37 (4/5)	114.48 (29/5)
SINGAPORE						
Straits Times (1966)	876.08	876.03	871.52	881.54	910.24 (15/5)	659.52 (2/1)
SOUTH AFRICA						
Gold (1958)	627.2	(c)	619.6	625.0	797.6 (7/1)	561.3 (3/5)
Industrial (1958)	655.1	(c)	634.6	656.5	653.6 (1/5)	587.2 (3/2)
SPAIN						
Madrid SE (30/12/80)	119.86	119.25	118.28	119.04	119.89 (22/5)	100.46 (2/1)
SWEDEN						
Jacobson & P. (1/1/58)	528.26	(c)	528.06	528.44	534.37 (21/5)	404.17 (20/1)
SWITZERLAND						
Swiss BankCpn. (31/12/58)	280.8	(c)	279.8	280.3	304.2 (2/4)	279.8 (27/5)
WORLD						
Capital Intl. (1/1/70)	—	155.5	155.8	155.8	162.8 (6/1)	149.8 (17/2)

Base values of all indices are 100 except Australia All Ordinary and Metals—500; NYSE All Common—50; Standard and Poors—10; and Toronto—1,000; the last named based on 1975. † Excluding bonds. ‡ 400 industrials. § 400 industrials plus 40 Utilities, 40 Financials and 20 Transports. c Closed. u unavailable.

NEW YORK ACTIVE STOCKS

Friday	Stocks traded	Closing price	Change on day
Norton Simon	850,500	16¼	+ ¼
IBM	796,300	58¾	+ ¼
Rowan	620,300	16¾	—
Philips Petrlm.	602,500	36½	+ ⅛
St. Oil Ind.	571,600	51⅛	− 2¼
Texaco	471,600	34½	− ⅛
Sony	468,100	24⅞	+ ½
Mission In.	450,900	49	+ 2½
Amer. Express	436,600	49	− 1¼
Xerox	436,100	54	+ ⅛

هكذا من الأصل

FT Monthly Survey of Business Opinion

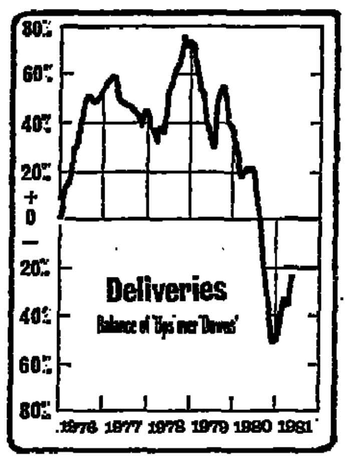
GENERAL OUTLOOK

Confidence up again

INDUSTRY'S OPTIMISM about the business outlook showed a sharp improvement last month, *reflecting increased confidence* that the recession has bottomed out.

The index measuring companies' opinion of the general business situation rose for the third successive month. Following the steep decline last year, the index is now at around the *highest since mid-1979.*

Of the three sectors surveyed last month, electrical engineering companies and the motor vehicle and consumer durables industry were more optimistic than they had been when last quizzed four months ago.



The stores and consumer goods sector was more inclined towards pessimism, although there was some improved confidence about this year's level of retail sales.

In the manufacturing areas, electrical engineering companies were generally more optimistic about export prospects and the ending of the steep economic downturn. Some vehicles and durables firms however commented that although the recession had bottomed out, activity was still sluggish.

Optimism about the UK economy also increased, although caution continued about *the strength of any* upturn.

GENERAL BUSINESS

Are you more or less optimistic about your company's prospects than you were four months ago?	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
More optimistic	37	27	21	19	31	24	77
Neutral	41	47	50	42	69	76	—
Less optimistic	22	26	29	39	—	—	23

EXPORT PROSPECTS (Weighted by exports)

Over the next 12 months exports will be:	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Higher	42	41	40	43	76	61	25
Same	29	26	27	27	20	22	55
Lower	28	32	32	30	4	17	20
Don't know	1	1	1	—	—	—	—

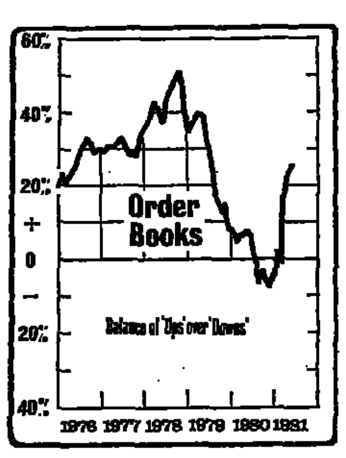
ORDERS AND OUTPUT

Upturn in demand

Orders and deliveries have improved markedly during the last few months in response to an upturn in demand compared with the very low levels at the start of the year.

The indices measuring new orders and the expected level of order books both rose again last month, especially in the consumer services and stores sector.

The electrical engineering group, together with consumer services, expected order books



to increase during the next four months.

All three sectors reported higher deliveries during the last four months compared with the same period a year ago.

The fall in the value of the pound, acceptance of reduced margins and customer re-stocking were all cited as positive factors.

The three groups also expected greater increases in turnover volume during the next *12 months than they had done* four months ago.

NEW ORDERS

The trend of new orders in the past 4 months was:	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Up	18	13	14	10	32	57	34
Same	24	25	20	18	5	28	—
Down	42	47	49	54	63	15	4
No answer	16	15	17	18	—	—	62

PRODUCTION/SALES TURNOVER

Those expecting production/sales turnover in the next 12 months to:	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Rise over 20%	1	3	3	2	—	—	—
Rise 15-19%	—	—	—	1	—	—	—
Rise 10-14%	6	3	5	4	5	8	21
Rise 5-9%	16	11	11	13	32	41	17
About the same	60	62	58	59	61	44	58
Fall 5-9%	6	8	7	9	—	—	—
Fall over 10%	6	6	5	5	2	—	4
No comment	5	7	11	7	—	7	—

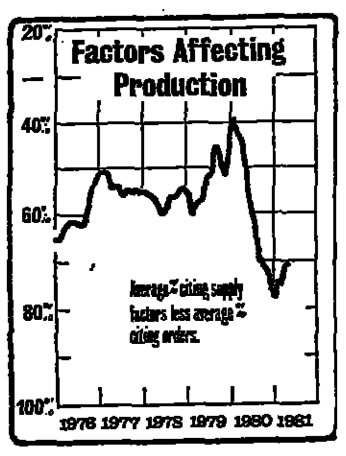
CAPACITY AND STOCKS

Improved working levels

A general improvement in capacity usage was reflected in a fall in the number of companies reporting that they were working below planned output levels. However, nearly 60 per cent of companies still have fixed assets not being used for lack of demand.

The rise in the index measuring capacity working partly reflects the number of companies which have adjusted to relatively low output levels.

All three setors were more



inclined to expect an increase in stocks during the next 12 months. In the consumer sector, this partly reflected the recent increases *in retail sales.*

Confirming that pressure to reduce stocks is easing, the *three groups were less inclined* to say that stock levels are too high.

Production is still heavily constrained by demand factors. But slightly more companies last month mentioned shortages of components or raw materials as inhibiting output.

CAPACITY WORKING

	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Above target capacity	5	3	3	3	—	33	17
Planned output	35	29	33	39	60	41	62
Below *target capacity*	51	59	56	56	40	26	21
No answer	9	9	8	2	—	—	—

STOCKS

Raw materials and components over the next 12 months will:	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Increase	29	23	19	17	61	43	56
Stay about the same	47	48	44	43	37	—	23
Decrease	22	25	31	34	2	41	21
No comment	2	4	6	6	—	16	—
Manufactured goods over the next 12 months will:							
Increase	24	21	18	14	24	32	56
Stay about the same	46	48	44	38	53	11	23
Decrease	19	19	26	35	3	41	21
No comment	11	12	12	13	20	16	—

FACTORS CURRENTLY AFFECTING PRODUCTION

	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Home orders	92	91	91	90	52	84	96
Export orders	60	62	64	66	15	43	52
Executive staff	2	—	—	—	2	—	17
Skilled factory staff	2	3	4	4	—	—	—
Manual labour	—	—	—	1	—	—	—
Components	1	—	—	—	4	16	—
Raw materials	7	4	4	2	16	—	17
Production capacity (plant)	3	3	3	3	—	—	17
Finance	1	—	1	1	—	8	—
Others	15	14	13	6	32	24	2
Labour disputes	15	16	11	9	16	15	—
No answer/no factor	3	1	1	5	48	—	4

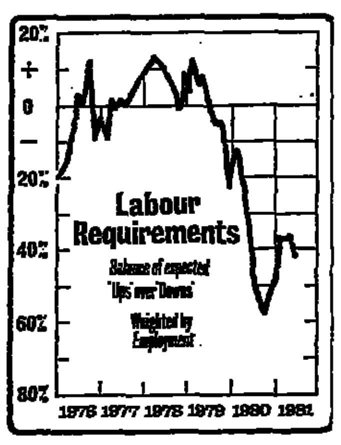
INVESTMENT AND LABOUR

Workforce cuts planned

Pressure on industry to prune its labour force continue in spite of improved business confidence. Both the electrical engineering and the consumer services sectors were more inclined to forecast falling staff levels than they had been four months previously.

Cost pressures and a determination to boost productivity further were the main factors spurring plans to reduce companies' workforce.

Demand factors are becom-



ing slightly less important in *determining employment levels.*

Companies reported more optimism on the investment outlook, with all three groups more inclined to expect capital spending to increase during the next 12 months. In the durables sector, about two-thirds of companies surveyed expected to increase the proportion of *overseas investment.*

The manufacturing sectors reported a slight improvement *in liquidity levels.*

LABOUR REQUIREMENTS (Weighted by employment)

Those expecting their labour force over the next 12 months to:	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Increase	10	11	12	10	14	23	3
Stay about the same	39	42	38	43	3	53	44
Decrease	51	47	49	47	83	24	53
No comment	—	—	1	—	—	—	—

CAPITAL INVESTMENT (Weighted by capital expenditure)

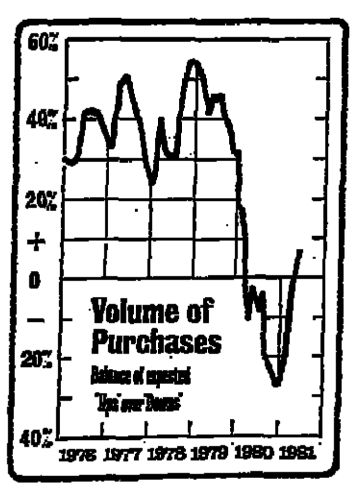
Those expecting capital expenditure over the next 12 months to:	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Increase in volume	28	26	25	27	77	34	21
Increase in value but not in volume	6	6	7	6	—	—	20
Stay about the same	26	22	25	24	12	31	41
Decrease	40	45	42	42	11	35	18
No comment	—	1	1	1	—	—	—

COST AND PROFIT MARGINS

Inflation slowdown tailing off

The sharp slowdown in wage and price pressures appears to be tailing off now that the worst of the recession has passed.

Compared with the last survey



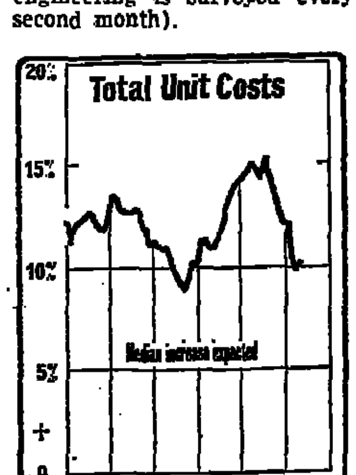
in January, all three sectors expect higher rates of wages increases over the next 12 months, with the median expected rise in unit costs moving up to just above 10 per cent last month.

By contrast, companies forecast price rises of only just above 9 per cent during the next 12 months, little changed from previously. Electrical engineering companies in particular expected higher price increases.

Most sectors surveyed however continued optimistic about profit margins following the sharp rebound in confidence in recent months. Productivity improvements and the drop in the pound were mentioned as contributing to profits optimism.

Three sectors and some 30 companies are covered in turn every month. They are drawn from a sample based upon the FT Actuaries' index, which accounts for about 60 per cent of all public companies.

The all-industry figures are four-monthly moving totals covering 120 companies in 11 industrial sectors (mechanical engineering is surveyed every second month).



Complete tables can be purchased from Taylor Nelson and Associates.

COSTS

	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Wages rise by:							
0-4%	—	1	1	1	—	—	—
5-9%	45	53	49	43	32	59	8
10-14%	46	40	40	38	68	41	57
15-19%	—	1	4	5	—	—	—
20-24%	—	—	—	2	—	—	—
No answer	9	5	6	11	—	—	35
Unit cost rise by:							
0-4%	3	6	7	5	—	—	—
5-9%	35	35	30	25	40	35	23
10-14%	39	37	40	50	40	32	34
15-19%	4	5	6	8	4	—	—
20-24%	1	—	—	—	—	—	4
Same	1	1	1	1	—	—	—
Decrease	2	2	2	—	—	—	—
No answer	15	14	14	11	16	33	39

PROFIT MARGINS

Those expecting profit margins over the next 12 months to:	4 monthly moving total				May 1981		
	Feb.-May %	Jan.-Apr. %	Dec.-Mar. %	Nov.-Feb. %	Elect. Eng'g. %	Vehicle Cmpnts. & Dis'btrs. %	Consumer Service Organs. %
Improve	38	37	30	23	43	97	17
Remain the same	37	39	39	34	57	—	29
Contract	24	23	30	42	—	—	54
No comment	1	1	1	1	—	3	—

INTL. COMPANIES & FINANCE

AMC and VW in deal with Chrysler Financial

BY IAN HARGREAVES IN NEW YORK

VOLKSWAGEN of Germany and American Motors Corporation, which is controlled by Renault of France, have entered into a deal with Chrysler Financial, the customer-financing arm of the ailing U.S. motor company.

VW and American Motors, which lack effective customer-financing units of their own, have agreed to buy administrative services from the well-developed Chrysler Financial network throughout the U.S. Each will pay an undisclosed fee according to the volume of business.

The announcement resolves one of the longer running riddles in the Chrysler saga and helps to underpin the future of Chrysler Financial, which is considered a successful and well-managed finance company fairly well insulated from the problems of its parent.

Chrysler also said, however, that it intends to continue to try to find a buyer for an equity interest in Chrysler Financial—probably a 51 per cent controlling interest — outside the automotive field.

A number of banks and financial companies have examined the possibility of taking such a stake, which might be worth about $300m, but have been discouraged because of the current volatility of the auto business and because of a lingering uncertainty as to whether Chrysler Financial's assets would be safe from seizure in the event of the bankruptcy of the parent company.

VW and AMC are not taking any equity risks of this kind, although their expression of confidence in the management and structure of Chrysler Financial is bound to help Chrysler in its search for equity partners.

Bourse acts after Ogem dispute

By Charles Batchelor in Amsterdam

BECAUSE OGEM, the Dutch trading, industrial and construction group, failed at its annual meeting to obtain approval for its accounts, its shares were removed from the active trading list on Friday, the Stock Exchange Association said in Amsterdam. The association said the move was taken to prevent major price fluctuations and Ogem shares will be temporarily traded in a closed pitch and will have only two quotations a day.

The Board of Ogem took the unusual step of suspending the annual shareholders' meeting on Wednesday after four hours of heated debate.

The meeting was adjourned until July 8 after it emerged that the company's bankers had been ceded much more control than was originally thought as part of a deal to guarantee Ogem's financial position. The Board ordered the suspension to allow itself time to prepare answers to shareholders' questions.

Ogem is engaged in a restructuring programme aimed at disposing of activities which have led to a combined loss of Fl 143m ($55m) in 1979 and 1980. It is cutting back its project development activities, its capital-intensive foreign construction and installation work, and selling off a number of minority holdings as well as its overseas electricity generation interests.

Conic to raise HK$125m

By Kevin Rafferty in Hong Kong

CONIC, the Hong Kong electronics company which is the territory's largest employer of labour after the Government, has released details of the public offer it is to make during the next few weeks. Mr Alex Au, the group's founder and chairman, said that he hopes to raise between HK$100m and HK$125m (U.S.$54.8m) through a share issue by Conic Investments.

This would represent 25 per cent of the capital under the wing of Conic Investments and about an eighth of the total group. Details of the offer are still being finalised.

Advance in earnings for Japanese drug companies

BY OUR FINANCIAL STAFF

THREE OF the leading pharmaceutical companies in Japan reported gains in net profit for the year ended March 31. Takeda Chemical Industries, the country's biggest manufacturer, said that profits went up by 6.2 per cent to Y14.45bn ($64.20m) on sales that advanced by no more than 2.5 per cent to Y430.88bn ($1.92bn) from Y420.32bn. Earnings per share rose to Y33.65 from Y31.95.

Takeda said that profit margins were trimmed by a decline in demand and the rise in the value of the yen. Exports of drugs rose by 5.2 per cent above the previous year to reach Y27.97bn, accounting for 6.5 per cent of business.

Fujisawa Pharmaceutical Company showed a 2.7 per cent advance in net earnings to Y13.86bn ($61.61m) compared to Y13.49bn, while sales rose more sharply, by 12 per cent to Y155.91bn ($692.91m) from the previous year's Y139.21bn. The company said that an increase in raw material costs slowed down the pace of the growth in earnings.

The third company, Sankyo, reported the strongest rise, up 25.9 per cent to Y6.84bn ($30.40m) from Y5.43bn in the previous year. Sales advanced by 17.1 per cent to Y187.20bn ($831.98m) from Y159.93bn.

PENDING DIVIDENDS

Company	Date	Announcement last year
*Allied Breweries	June 5	Final 3.0
Anderson Strathclyde	June 26	Final 3.0
Assoc. British Foods	June 9	Final 2.3
*Assoc. Comms	June 25	Final 4.9
Aust. and NZ Bank	May 19	Int. 12 cents
*Avon Rubber	June 3	Int. 4.0
*BPB Inds.	June 24	Final 6.0
Baker Perkins	June 19	Final 4.35
*Bass	June 9	Int. 2.3
*Beecham	June 4	Final 3.245
Brit. and Com. Shipping	June 12	Final 7.0
*Butterfield-Harvey	June 16	Final 1.5
Charter Consd.	June 24	Final 5.0
Chloride	June 12	Final 2.3
*Coalite	June 3	Final 2.56
*De La Rue	June 2	Final 13.2
Duport	May 21	Final 3.116
Eastern Produce	June 23	Final 3.22
Electronic Rentals	June 5	Final 3.143
*Elliott (B.)	June 10	Final 7.25
*English China Clays	June 18	Int. 2.5
Ferranti	June 24	Final 4.0
GEI Intl.	June 17	Final 3.555
Great Portland Estates	June 9	Final 4.0
*Guinness (A.)	June 12	Int. 1.575
Guthrie	June 5	Final 21.0
Hambros	June 16	Final 112.5
*Hanson Tst.	June 10	Int. 3.75
*Harrisons and Crosfield	June 2	Final 20.5
*Hickson and Welch	June 4	Int. 2.5
Hill Samuel	June 12	Final 4.018
ICL	May 29	Int. 0.95
Intl. Timber	June 10	Final 5.6
Johnson Matthey	June 18	Final 12.0
Kenning Motor	June 24	Int. 1.75
*London and O'seas Frtrs.	June 10	Final 1.072
*MEPC	June 2	Int. 1.75
*Marley	June 3	Int. 2.0
*Metal Box	June 8	Final 11.83
Norcros	June 27	Final 3.56
*Northern Foods	June 4	Int. 2.0
*Pilkington Bros.	June 12	Final 5.5
Plessey	*June 26*	*Final 4.01*
Powell Duffryn	June 25	Final 9.0
Racal Electronics	June 19	Final 3.075
*Reed Intl.	June 2	Final 9.0
Samuel (H.)	May 19	Final 5.524
Scapa	June 27	Final 3.75
*600 Group	June 11	Final 2.91
*Sketchley	June 9	Final 5.2
Tesco	June 18	Final 1.45
Trusthouse Forte	June 25	Int. 2.25
Tunnel	June 19	Final 6.0
UKO Intl.	June 12	Final 6.48
*Valor	June 11	Final 1.891
Ward (T. W.)	June 3	Int. 2.407
Wedgwood	June 20	Final 2.426
*Westland Aircraft	June 10	Int. 2.0
Whitecroft	*June 23*	*Final 5.2*
Woodhead (Jonas)	June 13	Final 5.0

* Board meeting intimated. † Rights issue since made. ‡ Tax free. § Scrip issue since made. ¶ Forecast.

BASE LENDING RATES

Bank	Rate	Bank	Rate
A.B.N. Bank	12 %	■ Guinness Mahon	12 %
Allied Irish Bank	12 %	■ Hambros Bank	12 %
American Express Bk.	12 %	Heritable & Gen. Trust	12 %
Amro Bank	12 %	■ Hill Samuel	§12 %
Henry Ansbacher	12 %	C. Hoare & Co.	†12 %
AP Bank Ltd.	12 %	Hongkong & Shanghai	12 %
■ Arbuthnot Latham	12 %	Knowsley & Co. Ltd.	14 %
Associates Cap. Corp.	12 %	Langris Trust Ltd.	12 %
Banco de Bilbao	12 %	Lloyds Bank	12 %
BCCI	12 %	Mallinhall Limited	12 %
Bank of Cyprus	12 %	Edward Manson & Co.	13 %
Bank of N.S.W.	12 %	Midland Bank	12 %
Banque Belge Ltd.	12 %	■ Samuel Montagu	12 %
Banque du Rhone et de la Tamise S.A.	12½%	■ Morgan Grenfell	12 %
Barclays Bank	12 %	National Westminster	12 %
Beneficial Trust Ltd.	13 %	Norwich General Trust	12 %
Bremar Holdings Ltd.	13 %	P. S. Refson & Co.	12 %
Bristol & West Invests.	13 %	Ryl. Bk. Canada (Ldn.)	12 %
Brit. Bank of Mid. East	12 %	Slavenburg's Bank	12 %
■ Brown Shipley	12½%	E. S. Schwab	13 %
Canada Perm't Trust	13 %	Standard Chartered	‖12 %
Cayzer Ltd.	12 %	Trade Dev. Bank	12 %
Cedar Holdings	12 %	Trustee Savings Bank	12 %
■ Charterhouse Japhet	12 %	TCB Ltd.	12 %
Choulartons	12 %	United Bank of Kuwait	12 %
C. E. Coates	12 %	Whiteaway Laidlaw	12½%
Consolidated Credits	12 %	Williams & Glyn's	12 %
Co-operative Bank	*12 %	Wintrust Secs. Ltd.	12 %
Corinthian Secs.	12 %	Yorkshire Bank	12 %
The Cyprus Popular Bk.	12 %		
Duncan Lawrie	12 %		
Eagil Trust	12 %		
E. T. Trust Limited	12 %		
First Nat. Fin. Corp.	14 %		
First Nat. Secs. Ltd.	14 %		
Robert Fraser	12 %		
Antony Gibbs	12 %		
Greyhound Guaranty	12 %		
Grindlays Bank	‡12 %		

■ Members of the Accepting Houses Committee.
* 7-day deposits 9%, 1-month 9¼%. Short term £4,000/12 months 11.85%.
† 7-day deposits on sums of £10,000 and under 9%, up to £50,000 9¼% and over £50,000 10¼%.
‡ Call deposits £1,000 and over 9%.
§ Demand deposits 9½%.
‖ 21-day deposits over £1,000 10½%.

Public Works Loan Board rates

Effective from May 23

Years	Quota loans repaid by EIP†	A‡	at maturity§	Non-quota loans A* repaid by EIP†	A‡	at maturity§
Up to 5	13⅞	13⅞	14	14½	14½	14½
Over 5, up to 10	14	14⅜	14½	14½	14⅞	15
Over 10, up to 15	14½	14½	14½	15	15	15
Over 15, up to 25	14½	14½	14⅝	15	15	14⅞
Over 25	14½	14⅝	14⅝	15	14⅞	14⅞

* Non-quota loans B are 1 per cent higher in each case than non-quota loans A. † Equal instalments of principal. ‡ Repayment by half-yearly annuity (fixed equal half-yearly payments to include principal and interest). § With half-yearly payments of interest only.

CURRENCIES, MONEY and GOLD

Rates in the melting pot

BY COLIN MILLHAM

London is the only major financial centre where interest rates have fallen by any significant amount since the beginning of this year. Under these circumstances it is hardly surprising that expectations of a further fall in Bank of England Minimum Lending Rate have come come to an abrupt end, and the London money market is now very nervous about the future direction of interest rates. This is particularly true when looking forward to the end of the civil service dispute, and the flood of Government revenue which should result, causing extreme shortages of funds in the market.

During the last five months MLR has been cut by 2 per cent while three-month Eurosterling has fallen by about 2½ per cent to the region of 12½ per cent. Over the same period three-month Euro Swiss francs have almost doubled from 5⅝ per cent to around 10 per cent, and three-month Euro French francs have risen to 20⅝ per cent from 11¼ per cent.

Interest rates for a similar period on D-marks have risen to 12¾ per cent from 9¼ per cent, and on Belgian francs to 17 per cent from 12⅝ per cent. Only Japanese rates have remained fairly steady, with three-month Euroyen easing to 7¾ per cent from 8¼ per cent.

The trend in international interest rates is of course largely the result of events in the U.S., where rates have been on another upward spiral until very recently. Most Eurocurrency rates were higher about a week ago, but signs that U.S. rates may have turned the corner, have had a significant effect. Better than expected U.S. money supply figures, and only a small rise in the latest leading economic indicators, pushed down Eurodollar rates last week.

At the same time Chemical Bank may have started a new phase in commercial bank rates by cutting its broker loan rate on Wednesday. This was followed by the reduction in Chase Manhattan's prime lending rate the following day.

Before the easing of U.S. rates had become a major factor the D-mark fell to a four-year low against the dollar, and sterling touched its lowest level for two years. The lira fell to a record low, and the French franc was only just recovering from a ten-year low against the dollar.

Against this background a further fall in U.S. rates is long overdue as far as Europe is concerned, but many uncertainties lie ahead, including the impact of the end of the civil servants dispute on London, and the likely volatility of U.S. rates for some time to come.

THE POUND SPOT AND FORWARD

May 29	Day's spread	Close	One month	% p.a.	Three months	% p.a.
U.S.	2.0675-2.0775	2.0695-2.0705	1.00-1.10c dis	−6.09	2.80-2.90dis	−5.51
Canada	2.4830-2.4950	2.4905-2.4915	1.35-1.45c dis	−6.74	3.90-4.05dis	−6.38
Nethlnd.	5.33-5.38	5.36½-5.37½	⅛c pm-⅜ dis	−0.28	⅝ pm-⅜ dis	0.09
Belgium	78.30-78.85	78.70-78.80	25-35c dis	−4.57	85-95 dis	−4.57
Denmark	15.13-15.17	15.15-15.16	2⅞-4¼ore dis	−2.82	9¾-11⅜ dis	−2.82
Ireland	1.3100-1.3190	1.3160-1.3175	0.33-0.44p dis	−3.51	1.01-1.13dis	−3.25
W. Ger.	4.80-4.83½	4.82-4.83	⅛pf pm-⅜ dis	−0.31	⅛-⅜ dis	−0.31
Portugal	126.25-127.25	126.75-126.95	60-130c dis	−8.99	135-310 dis	−7.02
Spain	190.00-191.00	190.10-190.30	130-165c dis	−9.30	350-390 dis	−7.78
Italy	2,390-2,400	2,398-2,400	20-22 lire dis	−10.50	56½-59½ dis	−9.67
Norway	11.83-11.90	11.87-11.88	1-2¼ore dis	−1.89	3-4½ dis	−1.30
France	11.39-11.52	11.50-11.52	9¾-10¾c dis	−10.69	23-24 dis	−8.17
Sweden	10.20-10.26	10.20-10.22	3-4ore dis	−4.11	8⅜-9⅜ dis	−3.48
Japan	461-466	463-464	2.80-2.45y pm	6.80	6.30-6.95 pm	5.28
Austria	33.95-34.15	34.10-34.15	4gro pm-2 dis	0.35	5 pm-6 dis	−0.06
Switz.	4.27-4.31	4.29-4.30	1¼-¾c pm	2.09	2½-1½ pm	1.86

Belgian rate is for convertible francs. Financial franc 80.20-80.30. Six-month forward dollar 4.28-4.38c dis, 12-month 6.70-6.90c dis.

THE DOLLAR SPOT AND FORWARD

May 29	Day's spread	Close	One month	% p.a.	Three months	% p.a.
UK†	2.0675-2.0775	2.0695-2.0705	1.00-1.10c dis	−6.09	2.80-2.90dis	−5.51
Ireland†	1.5740-1.5800	1.5740-1.5770	0.26-0.36c dis	−2.36	0.78-0.90dis	−2.13
Canada	1.2009-1.2016	1.2013-1.2016	0.06-0.10c dis	−0.80	0.17-0.22dis	−0.65
Nethlnd.	2.5805-2.5930	2.5900-2.5930	1.28-1.18c pm	5.71	3.55-3.45 pm	5.42
Belgium	37.85-38.04	38.02-38.04	6-5c pm	1.74	10-7 pm	0.89
Denmark	7.3050-7.3250	7.3050-7.3075	2.20-1.95ore pm	3.41	5.50-5.00 pm	2.87
W. Ger.	2.3200-2.3350	2.3295-2.3305	1.12-1.06pf pm	5.61	2.95-2.90 pm	5.03
Portugal	61.20-61.45	61.25-61.45	par-30c dis	−2.93	20pm-60dis	−1.30
Spain	91.95-92.10	92.05-92.10	20-35c dis	−3.58	45-65 dis	−2.39
Italy	1,155¼-1,159	1,158-1,159	4-5½ lire dis	−4.93	12-14 dis	−4.49
Norway	5.7150-5.7420	5.7400-5.7420	2.25-1.75ore pm	4.18	6.50-6.00 pm	4.35
France	5.5000-5.5700	5.5575-5.5625	1.75-2.75c dis	−4.85	2½-4½ dis	−2.52
Sweden	4.9300-4.9380	4.9355-4.9375	0.90-0.70ore pm	1.94	2.90-2.70 pm	2.27
Japan	223.25-224.25	223.70-223.80	2.10-1.90y pm	10.73	5.60-5.45 pm	9.88
Austria	16.43-16.46	16.44½-16.45½	9½-8gro pm	6.38	25-21 pm	5.59
Switz.	2.0650-2.0760	2.0745-2.0755	1.50-1.40c pm	8.36	4.05-3.95 pm	7.71

† UK and Ireland are quoted in U.S. currency. Forward premiums and discounts apply to the U.S. dollar and not to the individual currency.

GOLD

	May 29		May 28	
Gold Bullion (fine ounce)				
Close	$478-481	(£230¾-232¼)	$477-480	(£230½-232)
Opening	$478-481	(£230¼-231¾)	$471-474	(£228-229⅛)
Morning fixing	$478.75	(£230.834)	$472	(£228.406)
Afternoon fixing	$479.25	(£231.187)	$479	(£231.401)
Gold Coins				
Krugerrand	$493½-494½	(£238½-239)	$493½-494½	(£238½-239)
1/2 Krugerrand	$247-248	(£120-120½)	$264½-255½	(£123-123½)
1/4 Krugerand	$126-127	(£61-61½)	$129¾-130¾	(£62¾-63¼)
1/10 Krugerrand	$52-53	(£25¼-25¾)	$53-54	(£25½-26)
Mapleleaf	$475-477	(£230¾-231½)	$488½-489½	(£236-236½)
New Sovereigns	$117-118	(£56¾-57¼)	$119¾-120½	(£57¾-58¼)
King Sovereigns	$127-129	(£61¼-62¼)	$127-129	(£61½-62½)
Victoria Sovs.	$127-129	(£61¼-62¼)	$127-129	(£61½-62½)
French 20s	$217-220	(£105-106¾)	$135-141	(£65¼-68)
10 pesos Mexico	$581-585	(£282-284)	$593-599	(£286½-289½)
100 Cor. Austria	$460-466	(£222¼-226¼)	$458-465	(£221¼-224¾)
$20 Eagles	$576-581	(£279¾-282)	$588-593	(£284-286½)

OTHER CURRENCIES

May 29	£	$		£ Note Rates
Argentina Peso	6773-6793	3258-3268	Austria	33.80-34.15
Australia Dollar	1.8150-1.8190	0.8780-0.8785	Belgium	79.50-80.50
Brazil Cruzeiro	177.76-178.76	85.80-86.23	Denmark	15.04-15.19
Finland Markka	9.012-9.023	4.3625-4.3650	France	11.40-11.50
Greek Drachma	115.819-118.759	56.58-56.75	Germany	4.80¼-4.83¾
Hong Kong Dollar	11.30-11.32	5.4650-5.4680	Italy	2340-2390
Iran Rial	162.70*	78.90*	Japan	463-469
Kuwait Dinar(KD)	0.575-0.581	0.2784-0.2789	Netherlands	5.34-5.37
Luxembourg Frc.	78.70-78.80	38.02-38.04	Norway	11.80-11.90
Malaysia Dollar	4.8550-4.8650	2.3485-2.3505	Portugal	124-127
New Zealand Dlr	2.3660-2.3710	1.1440-1.1450	Spain	186¼-197
Saudi Arab. Riyal	*7.01-7.07*	*3.3900-3.3920*	*Sweden*	*10.22-10.32*
Singapore Dollar	4.45-4.46	2.1525-2.1545	Switzerland	4.27-4.31
Sth African Rand	1.7520-1.7540	0.8465-0.8475	United States	2.06½-2.07¼
U.A.E. Dirham	7.59-7.65	3.6718-3.6738	Yugoslavia	75-83

Rate given for Argentina is free rate. * Selling rate.

FT LONDON INTERBANK FIXING (11.00 a.m. MAY 29)

3 months U.S. dollars		6 months U.S. dollars	
bid 17 15/16	offer 17 15/16	bid 17 1/16	offer 17 3/16

The fixing rates are the arithmetic means, rounded to the nearest one-sixteenth, of the bid and offered rates for $10m quoted by the market to five reference banks at 11 am each working day. The banks are National Westminster Bank, Bank of Tokyo, Deutsche Bank, Banque Nationale de Paris and Morgan Guaranty Trust.

EURO-CURRENCY INTEREST RATES (Market closing Rates)

May 29	Sterling	U.S. Dollar	Canadian Dollar	Dutch Guilder	Swiss Franc	West German Mark	French Franc	Italian Lira	Belgian Franc Convertible	Japanese Yen
Short term	11½-11¾	17½-17¾	17½-19	11¾-12	1½-1¾	10½-10¾	20-21½	18-21	15-17	5¾-6¼
7 days' notice	11⅝-11⅞	17⅝-17⅞	17½-19	12-12¼	4½-4¾	11-11¼	20-21½	20-23½	15-17	6½-6¾
Month	12⅟₁₆-12¼	17⅞-18⅛	18¼-18⅝	12⅟₁₆-12¼	9⅜-9⁹⁄₁₆	12¼-12⅜	22¼-23	22-24	16¼-17	7⅛-7⅜
Three months	12⅜-12⅝	17⅝-18⅛	18¼-18⅝	12¼-12½	9⅞-10	12⅝-12⅞	20¼-21	22-23	16¾-17¾	7⅝-7⅞
Six months	12¾-12⅞	17-17¼	17⅜-17¾	12⅜-12⅝	10⅟₁₆-10⅜	12⅝-12⅞	18¾-19¾	21½-22½	16-17	7¾-8
One Year	12⅞-13⅛	16⅛-16⅜	16⅝-17	12⅜-12⅝	9¼-9⅝	12⅝-12⅞	17-18	21-22	16-17	8⅛-8⅝

SDR linked deposits: one-month 15⅛-15½ per cent; three months 15-15⅜ per cent; six months 14¹³⁄₁₆-14¹⁵⁄₁₆ per cent; one-year 14⅛-14½ per cent.

ECU linked deposits: one-month 15⅝-15⅞ per cent; three months 15¹³⁄₁₆-15¹⁵⁄₁₆ per cent; six months 14⅞-15⅛ per cent; one-year 14⁷⁄₁₆-14¹¹⁄₁₆ per cent.

Asian $ (closing rates in Singapore): one-month 18³⁄₁₆-18⁵⁄₁₆ per cent; three months 18¹⁄₁₆-18³⁄₁₆ per cent; six months 17⅛-17¼ per cent; one-year 16⁵⁄₁₆-16⁷⁄₁₆ per cent. Long-term Eurodollar two years 16⅛-16½ per cent; three years 16¼-16½ per cent; four years 16¼-16½ per cent; five years 16⅛-16⅜ per cent; nominal closing rates. Short-term rates are call for U.S. dollars, Canadian dollars and Japanese yen; others two days' notice.

The following nominal rates were quoted for London dollar certificates of deposit: one-month 17.75-17.85 per cent; three months 17.65-17.75 per cent; six months 17.75-17.85 per cent; one-year 15.90-16.10 per cent.

LONDON MONEY RATES

May 29 1981	Sterling Certificate of deposit	Interbank	Local Authority deposits	Local Auth. negotiable bonds	Finance House Deposits	Company Deposits	Discount Market Deposits	Treasury Bills ⊕	Eligible Bank Bills ⊕	Fine Trade Bills ⊕
Overnight	—	9-12¼	11¾-12¼	—	—	11½-12¼	10-11¾	—	—	—
2 days notice	—	—	11⅝-11⅞	—	—	—	—	—	—	—
7 days or 7 days notice	—	11⅝-12	11¾-12	—	12	12⅛-12¼	11¼	—	—	—
One month	12⅟₁₆-12	11⅞-12⅛	11⅞-12⅛	13⅛-12⅞	12¼	12⅜	11⅛	11⅝-11⅞	11¾	12½
Two months	12⅟₁₆-12⅛	12⅟₁₆-12⅜	—	13¼-13	12⅜	12⅝	11⅝	11⅝-11⅞	11¾	12½
Three months	12⅛-12⅝	12⅟₁₆-12⅜	12⅜-12⅝	13¼-12⅞	12¾	12⅞	11¾	11⅞	11¾	12⅝
Six months	12⅟₁₆-12⅟₁₆	12⅝-12⅟₁₆	12½-12¾	13-12⅝	13	13	—	—	11¾	12½
Nine months	12⅟₁₆-12⅟₁₆	12⅝-12⅞	—	13⅝-13⅛	13⅛	13⅛	—	—	—	—
One year	12¾-12⅝	12⅟₁₆-13	13	13¼-12⅞	13¼	13¼	—	—	—	—
Two years	—	—	13¾	—	—	—	—	—	—	—

Local authorities and finance houses seven days' notice, others seven days' fixed. Long-term local authority mortgage rates nominally three years 14 per cent; four years 14 per cent; five years 14⅛ per cent. ⊕ Bank bill rates in table are buying rates for prime paper. Buying rates for four-month bank bills 11⅞ per cent; four months trade bills 12⁹⁄₁₆ per cent.

Approximate selling rate for one-month Treasury bills 11⁷⁄₁₆-11²⁷⁄₃₂ per cent; two months 11¹¹⁄₃₂-11²⁵⁄₃₂ per cent; three months 11¹³⁄₁₆ per cent. Approximate selling rate for one-month bank bills 11²³⁄₃₂-11¹³⁄₁₆ per cent; two months 11²³⁄₃₂-11¹³⁄₁₆ per cent; three months 11⅝-11¹¹⁄₁₆ per cent; one-month trade bills 12⅝ per cent; two months 12⅝ per cent and three months 12⁹⁄₁₆ per cent.

Finance Houses Base Rates (published by the Finance Houses Association) 12½ per cent from June 1, 1981. Clearing Bank Deposit Rates for sums at seven days' notice 9 per cent. Clearing Bank Rates for lending 12 per cent. Treasury Bills: Average tender rates of discount 11.3674 per cent.

CURRENCY RATES

May 29	Bank rate %	Special Drawing Rights	European Currency Unit
Sterling	12	0.565426	0.528415
U.S. $	14	1.17015	1.09382
Canadian $	18.68	1.40839	1.31400
Austria Sch	6¾	19.2384	17.9824
Belgium F	13	44.4013	41.4776
Danish K	11	8.56257	7.99682
D mark	7½	2.72341	2.54346
Guilder	9	3.02601	2.82698
French Fr	9½	6.48614	6.05319
Lira	19	1363.86	1268.35
Yen	6¼	262.231	244.797
Norwgn. Kr.	9	6.70496	6.27852
Spanish Pts.	8	107.669	100.741
Swedish Kr.	12	5.77586	5.39526
Swiss Fr.	5	2.42514	2.26586
Greek Dr'ch.	20½	—	62.0852

RECENT ISSUES

EQUITIES

Issue Price p‡	Amount Paid Up	Latest Renunc. Date	1981 High	1981 Low	Stock	Closing Price p	+ or −	Div. P. or Amount	Times Covered	Gross Yield	P.E. Ratio
—	F.P.	—	£25¼	£21½	Allegheny Int. Inc.	£25¼	+¾	QS1.40	—	2.6	—
‖ ‖	F.P.	—	£21⅛	£16¼	Amdahl	£21⅛	+⅜	Q40c	—	0.9	—
‖ ‖	F.P.	—	500	195	✠Atlantic Res.	195	−5	—	—	—	—
85	F.P.	24/6	140	105	✠Business Comp Syst	150	......	u1.0	6.7	1.1	19.4
§90	F.P.	15/5	135	89	✠Consultants 10p	130	......	—	—	—	—
475	F.P.	10/7	500	475	Energy Res. & Services	488	......	—	—	—	—
10	F.P.	27/5	14	13	F'st Charlotte Ast Tst	13	......	—	—	—	—
100	F.P.	22/5	111	102	G.T.GlobalRec.Inv Tst	103	−1	—	—	—	—
‖ ‖	F.P.	—	62	53	✠Harvey & Thompson	55	......	g2.24	1.1	5.8	21.6
¶91	F.P.	5/6	96	88	✠Intasun	85	......	g2.8	4.3	4.7	6.2
§84	F.P.	13/5	114	93	✠Metal Bulletin	110	−1	5.0	1.7	6.5	12.8
‖ ‖	F.P.	—	8½	3½	✠Reliant Motors	8½	+½	—	—	—	—
†44	F.P.	30/6	58	51	✠Selec TV	51	—	—	—	—	—
25	F.P.	29/5	25	20	Stone Platt Cnv Cm Pf	23	−1½	—	—	—	—

FIXED INTEREST STOCKS

Issue price £	Amount Paid Up	Latest Renunc. Date	1981 High	1981 Low	Stock	Closing Price £	+ or −
¶¶	F.P.	26/6	23p	16p	BPC 7.75% Non. Cum. Prf.	22½p	......
¶	F.P.	18/6	101½	100	Cambridge Water 8% Prf. 1986	100½	......
100 ‖	Nil	8/6	1½pm	¼pm	Crouch Gp. 9% Con. Uns. Ln. '93-96	¼pm	......
99.87	£30	16/7	29¾	27⅞	Finland 14½% Ln. 1986	29	+1¼
99.486	£30	25/6	29⅛	28	International Bk. 13½% Ln. 1986	29¼	+1
100 ‖	Nil	3/6	10½pm	6½pm	Laing Props 8¾% Cnv. Uns. Ln. 2000-05	6½pm	......
97¾	£50	10/7	61	44	Leeds (City of) 13½% Red. 2006	44½	......
99	F.P.	27/8	99	97	Newcastle Water 7¾% Red. Pref. 1986	97	−¼
£1¼ ‖	F.P.	12/6	107p	101p	Norton (WE) 11% Cnv. Cum. Rd. Prf.	101p	......
* *	F.P.	—	91p	90p	Paterson Zochonis 10% Cum. Pref.	91p	+1
96¾	£20	7/7	20	15½	Petroleos Mex. 14½% Ln. Due. 2006	17	+1½
£1 ‖	Nil	8/6	20ppm	4½ppm	Phicom 8% Cum. Con. Red. Pref.	20ppm	......
£1 ‖	Nil	—	5ppm	3ppm	Rexmore 13% Cnv. Cum. Red.Prf. 1991-92	5ppm	......
96¾	F.P.	—	98½	93	Swansea (City of) 13½% Red. 2006	93½	......
25p ‖	F.P.	17/6	31p	25p	Weir Group 10% Red Cum Part. Conv. Prf.	31p	+1
¶	F.P.	4/6	103	101	West Hampshire Water 8% Red. Prf. '86	101	−½

"RIGHTS" OFFERS

Issue Price p‡	Am'unt paid up	Latest Renunc. Date ●	Latest Renunc. Date ■	1981 High	1981 Low	Stock	Closing price p‡	+ or −
64	F.P.	—	—	86	81	Amal. Power Eng.	85	......
190	F.P.	—	—	222	209	Barratt Devs.	215	......
380	Nil	—	—	77pm	58pm	Bestobell	66pm	−1
66	F.P.	—	—	86	79	Brit. Car Auction	83	+½
25	F.P.	22/5	3/7	34	31	Brit. Dredging	33	......
$A9	P.P.	—	—	565	405	Broken Hill Prop.	568	+5
77	Nil	—	—	7pm	3pm	Cadbury Schweppes	4pm	−½
500	Nil	—	—	450pm	350pm	Comm. Bk. of Near East	400pm	......
150	Nil	—	—	6pm	2pm	Elbar	6pm	+4
92	F.P.	15/5	5/6	129	110	Electrical & Industrial	128	−1
55	Nil	—	—	11pm	8½pm	Fine Art	11pm	+2
98	F.P.	22/5	26/6	102	97	Floyd Oil	97	......
95	F.P.	18/5	12/6	148	132	Fothergill & Harvey	146	......
250	Nil	—	—	32pm	19pm	G.R.E.	19pm	−8½
103	P.P.	—	—	94	66	Hong Kong & Shanghai Bank	94	+1
205	Nil	—	—	52pm	42pm	Horizon Travel	50pm	−2
‖	F.P.	—	—	102	95½	Lond'n Shop Pr'p 9% Cnv94-99	95¼	......
138	F.P.	—	—	176	158	Mowlem (J.)	174	......
70	Nil	—	—	8½pm	7½pm	Northern Engineering	8pm	−½
‖r165	F.P.	7/5	11/6	170	157	Rohan Group	170	......
160	F.P.	15/5	12/6	176	160	Rowntree Mackintosh	160	......
131	Nil	—	—	24pm	10pm	Smurfit (Jefferson)	24pm	......
6	P.P.	6/5	21/9	11½	6½	Sterling Credit	10	−1
30	Nil	—	—	9pm	6pm	Western Selection	6pm	......
$A1¾	75c	—	—	95	64	Woodside	80	......

Renunciation date usually last day for dealing free of stamp duty. *b* Figures based on prospectus estimate. *g* Assumed dividend and yield. *u* Forecast dividend: cover based on previous year's earnings. F Dividend and yield based on prospectus or other official estimate for 1981. Q Gross. T Figures assumed. ‡ Cover allows for conversion of shares not now ranking for dividend or ranking only for restricted dividends. § Placing price to public. *p* Pence unless otherwise indicated. ¶ Issued by tender. ‖ Offered to holders of ordinary shares as a "rights." ** Issued by way of capitalisation. §§ Reintroduced. ¶¶ Issued in connection with reorganisation, merger or takeover. ‖‖ Introduction. □ Issued to former preference holders. ■ Allotment letters (or fully-paid). ● Provisional or partly-paid allotment letters. ★ With warrants. †† Dealings under special Rule. ✠ Unlisted Securities Market. ‡‡ London Listing. ‡ Effective issue price after scrip.

UNIT TRUST SERVICE

OFFSHORE & OVERSEAS—contd.

FT UNIT TRUST INFORMATION SERVICE

AUTHORISED UNIT TRUSTS

Abbey Unit Tst. Mgrs. (a)

Allen Harvey & Ross Unit Tst. Mgrs.

Allied Hambro Ltd. (a) (g)

Anderson Unit Trust Managers Ltd.

Ansbacher Unit Mgmt. Co. Ltd.

Anthony Wieler Unit Tst. Mgmt. Ltd.

Arbuthnot Securities Ltd. (a)(c)

Archway Unit Tst. Mgs. Ltd.

Barclays Unicorn Ltd. (a)(c)(g)

Baring Brothers & Co., Ltd. (a)(x)

Bishopsgate Progressive Mgmt. Co.

Bridge Fund Managers (a)(c)

Britannia Gp. of Unit Trusts Ltd.(a)(c)(g)

The British Life Office Ltd. (a)

Brown, Shipley & Co. Ltd.

Buckmaster Management Co. Ltd.

Canada Life Unit Trst. Mngrs. Ltd.

Cannon Unit Trust Managers Ltd.

Capel (James) Mngt. Ltd.

Carr, Sebag Unit Trust Managers(a)

Charities Official Invest. Fund

Chieftain Trust Managers Ltd.

Confederation Funds Mgt. Ltd. (a)

Craigmount Unit Tst. Mgrs. Ltd.

Crescent Unit Tst. Mgrs. Ltd. (a)(g)

Darlington Unit Trust Mngt. Ltd.

Discretionary Unit Fund Managers

E. F. Winchester Fund Mngt. Ltd.

Equity & Law Un. Tr. M. (a)(b)(c)

Fidelity International Management Ltd.

James Finlay Unit Trust Mngt. Ltd.

Framlington Unit Mgt. Ltd. (a)

Robert Fraser Trust Mgt. Ltd.

Friends' Provdt. Trust Mgrs. (a) (b) (c)

Funds in Court

G.T. Unit Managers Ltd.

G. & A. Trust (a) (g)

Gartmore Fund Managers (a)(g)

Gibbs (Antony) Unit Tst. Mgs. Ltd. (a)

Govett (John)

Grieveson Management Co. Ltd.

Guardian Royal Ex. Unit Mgrs. Ltd.

Henderson Administration (a) (b) (c)

Hill Samuel Unit Tst. Mgrs. (a)

Investment Intelligence Ltd. (a)

Key Fund Managers Ltd. (a)(g)

Kleinwort Benson Unit Managers

L & C Unit Trust Management Ltd.

Legal & General (Unit Tst. Mngrs.) Ltd.

Leonine Administration Ltd.

Lloyds Bk. Unit Tst. Mngrs. Ltd. (a)

Lloyd's Life Unit Tst. Mngrs. Ltd.

Local Authorities' Mutual Invest. Tst.

M & G Group (y)(c)(z)

Manulife Management Ltd.

Mayflower Management Co. Ltd.

McAnally Fund Management Ltd.

Mercury Fund Managers Ltd.

Midland Bank Group Unit Trust Managers Ltd.

Minster Fund Managers Ltd.

MLA Unit Trust Mngmt. Ltd.

Murray Johnstone U.T. Mgmt.

Mutual Unit Trust Managers (a)(g)

National Provident Inv. Mngrs. Ltd.

National Westminster (a)

NEL Trust Managers Ltd. (a)(g)

Northgate Unit Trust Managers Ltd.

Norwich Union Insurance Group (b)

Pearl Trust Managers Ltd. (a)(g)(z)

Pelican Units Admin. Ltd. (g)(x)

Perpetual Unit Trust Mngmt. (a)

Practical Invest. Co. Ltd. (y)(c)

Provincial Life Inv. Co. Ltd.

Prudl. Portfolio Mngrs. Ltd. (a)(b)(c)

Quilter Management Co. Ltd.

Reliance Unit Mgrs. Ltd.

Ridgefield Management Ltd.

Rothschild Asset Management (a) (g) (z)

Rowan Unit Trust Mngt. Ltd. (a)

Royal Tst. Can. Fd. Mgrs. Ltd.

Save & Prosper Group

Schroder Unit Trust Managers Ltd.

Scottish Amicable Inv. Mngrs. Ltd.

Scottish Equitable Fnd. Mgrs. Ltd.

SIMCO Money Funds

Stewart Unit Tst. Managers Ltd. (a)

Sun Alliance Fund Mangt. Ltd.

Swiss Life Pen. Tst. Man. Co. Ltd. (a)(c)

Target Tst. Mngrs. Ltd. (a)(g)

Tower Unit Trust Mngt. Ltd.

Trades Union Unit Tst. Managers

Transatlantic and Gen. Secs. Co. (y)

TSB Unit Trusts (y)

Tyndall Managers Ltd. (a)(b)(c)

Ulster Bank (a)

Unit Trust Account & Mgmt. Ltd.

INSURANCE PROPERTY BONDS

Abbey Life Assurance Co. Ltd.

AMEV Life Assurance Ltd.

Barclays Life Assur. Co. Ltd.

Black Horse Life Ass. Co. Ltd.

Canada Life Assurance Co.

Cannon Assurance Ltd.

Capital Life Assurance

Charterhouse Magna Gp.

Chieftain Assurance Funds

City of Westminster Assurance

Commercial Union Group

Confederation Life Insurance Co.

Cornhill Insurance Co. Ltd.

Credit & Commerce Insurance

Crown Life

Crusader Insurance Co. Ltd.

Eagle Star Insur./Midland Assur.

Equity & Law Life Ass. Soc. Ltd.

Equity & Law (Managed Funds) Ltd.

Family Assurance Society

Assicurazioni GENERALI S.p.A.

General Portfolio Life Ins. C. Ltd.

Growth & Sec. Life Ass. Soc. Ltd.

Guardian Royal Exchange

Hambro Life Assurance Limited

Hearts of Oak Benefit Society

Henderson Administration

Hill Samuel Life Assur. Ltd.

Imperial Life Ass. Co. of Canada

Irish Life Assurance Co. Ltd.

King & Shaxson Ltd.

Langham Life Assur. Co. Ltd.

Legal & General (Unit Assur.) Ltd.

Legal & General Prop. Fd. Mgrs. Ltd.

Life Assur. Co. of Pennsylvania

Lloyds Life Assurance

London A'deen & Nthn. Mtl. Assur. Ltd.

London Indemnity & Gnl. Ins. Co. Ltd.

London Life Linked Assur. Ltd.

The London & Manchester Ass. Gp.

M & G Group

Manufacturers Life Insurance Co.

Merchant Investors Assurance

NEL Pensions Ltd.

NPI Pensions Management Ltd.

New Zealand Ins. Co. (UK) Ltd.

Norwich Union Insurance Group

Pearl Assurance (Unit Funds) Ltd.

Phoenix Assurance Co. Ltd.

Planned Savings Group

Premium Life Assurance Co. Ltd.

Prop. Equity & Life Ass. Co.

Property Growth Assur. Co. Ltd.

Providence Capitol Life Assc. Co. Ltd.

Provincial Life Assurance Co. Ltd.

Prudential Pensions Limited

Refuge Investments Limited

Reliance Mutual

Rothschild Asset Management

Royal Insurance Group

Save & Prosper Group

Schroder Life Group

Scottish Widows' Group

Scandia Life Assurance Co. Ltd.

Solar Life Assurance Limited

Standard Life Assurance Company

Sun Alliance Fund Mangmt. Ltd.

Sun Alliance Linked Life Ins. Ltd.

Sun Life of Canada (UK) Ltd.

Sun Life Unit Assurance Ltd.

Sun Life Pensions Management Ltd.

Target Life Assurance Co. Ltd.

Transinternational Life Ins. Co. Ltd.

Trident Life Assurance Co. Ltd.

Tyndall Assurance/Pensions

Vanbrugh Life Assurance

Vanbrugh Pensions Limited

Welfare Insurance Co. Ltd.

Windsor Life Assur. Co. Ltd.

OFFSHORE & OVERSEAS FUNDS

Albany Fund Management Limited

Alexander Fund

Allen Harvey & Ross Inv. Mgt. (C.I.)

Alliance International Dollar Reserves

Arbuthnot Securities (C.I.) Limited

B.I.A. Bond Investments AG

Bank of America International S.A.

Banque Bruxelles Lambert

Barbican Managers (Jersey) Ltd.

Barclays Unicorn International

Bishopsgate Commodity Ser. Ltd.

Bridge Management Ltd.

Britannia Intl. Investment Mngt. Ltd.

Brown Shipley Tst. Co. (Jersey) Ltd.

Butterfield Management Co. Ltd.

CAL Investments (IoM) Ltd.

Capital International S.A.

Capital Asset Managers Ltd.

Central Assets Management Ltd.

Charterhouse Japhet

Chaston Commodities (Isle of Man) Ltd.

Clive Investments (Jersey) Ltd.

Cornhill Ins. (Guernsey) Ltd.

Cortexa International

Continued on previous page.

FT SHARE INFORMATION SERVICE

BRITISH FUNDS

"Shorts" (Lives up to Five Years)

Five to Fifteen Years

Over Fifteen Years

Undated

INTERNATIONAL BANK

CORPORATION LOANS

COMMONWEALTH AND AFRICAN LOANS

LOANS

Public Board and Ind.

Financial

FOREIGN BONDS & RAILS

AMERICANS

CANADIANS

BANKS AND HIRE PURCHASE

Hire Purchase, etc.

BEERS, WINES AND SPIRITS

BUILDING INDUSTRY, TIMBER AND ROADS

CHEMICALS, PLASTICS

DRAPERY AND STORES

ELECTRICALS

ELECTRICALS—Continued

ENGINEERING MACHINE TOOLS

FOOD, GROCERIES, ETC.

FOOD, GROCERIES—Cont.

HOTELS AND CATERERS

INDUSTRIALS (Miscel.)

هكذا من الأصل

INDUSTRIALS—Continued

[illegible]

INSURANCE

[illegible]

INSURANCE—Continued

[illegible]

LEISURE

[illegible]

MOTORS, AIRCRAFT TRADES

Motors and Cycles

[illegible]

Commercial Vehicles

[illegible]

Components

[illegible]

Garages and Distributors

[illegible]

NEWSPAPERS, PUBLISHERS

[illegible]

PAPER, PRINTING ADVERTISING

[illegible]

PROPERTY

[illegible]

PROPERTY—Continued

[illegible]

SHIPPING

[illegible]

SHOES AND LEATHER

[illegible]

SOUTH AFRICANS

[illegible]

TEXTILES

[illegible]

TOBACCOS

[illegible]

TRUSTS, FINANCE, LAND

Investment Trusts

[illegible]

INVESTMENT TRUSTS—Cont.

[illegible]

Finance, Land, etc.

[illegible]

OIL AND GAS

[illegible]

OIL AND GAS—Continued

[illegible]

OVERSEAS TRADERS

[illegible]

RUBBERS AND SISALS

[illegible]

TEAS

India and Bangladesh

[illegible]

Sri Lanka

[illegible]

Africa

[illegible]

MINES

Central Rand

[illegible]

Eastern Rand

[illegible]

Far West Rand

[illegible]

O.F.S.

[illegible]

Finance

[illegible]

Diamond and Platinum

[illegible]

Central African

[illegible]

MINES—Continued

Australian

[illegible]

Tins

[illegible]

Copper

[illegible]

Miscellaneous

		Stock	Price	Last xd	Div Net	C'vr	Y'ld Gr's
[illegible]							
—		Barymin	44		—	—	—
	May	Burma Mines 10p	23	30.3	0.75	0.9	4.7
—		Colby Res. Corp.	330	—	—	—	—
Aug.	Feb.	Cons. Murch. 10c.	275	30.6	tQ30c	1.8	6.2
—		††Hemerdon 10c.	73	—	—	—	—
—		Highwood Res.	145	—	—	—	—
—		Northgate C$1	350	977	—	—	—
Jan.	July	R.T.Z.	520xd	18.5	16.0	3.2	4.4
—		Do. 9¼%Cn.Ln.'95-2000	£116xd	18.5	Q9½%	—	†8.2
—		††SPO Minerals 10p	110‡	—	—	—	—
—		Sabina Inds. C$1.	35	—	—	—	—
—		††SWCM 10p	40	—	—	—	—
—		Tara Expln. $1	485	—	—	—	—

NOTES

Unless otherwise indicated, prices and net dividends are in pence and denominations are 25p. Estimated price/earnings ratios and covers are based on latest annual reports and accounts and, where possible, are updated on half-yearly figures. P/Es are calculated on "net" distribution basis, earnings per share being computed on profit after taxation and unrelieved ACT where applicable; bracketed figures indicate 10 per cent or more difference if calculated on "nil" distribution. Covers are based on "maximum" distribution; this compares gross dividend costs to profit after taxation, excluding exceptional profits/losses but including estimated extent of offsettable ACT. Yields are based on middle prices, are gross, adjusted to ACT of 30 per cent and allow for value of declared distribution and rights.

- ● "Tap" Stock.
- * Highs and Lows marked thus have been adjusted to allow for rights issues for cash.
- † Interim since increased or resumed.
- ‡ Interim since reduced, passed or deferred.
- ‡‡ Tax-free to non-residents on application.
- ♦ Figures or report awaited.
- ✱ USM; not listed on Stock Exchange and company not subjected to same degree of regulation as listed securities.
- †† Dealt in under Rule 163(2)(a); not listed on any Stock Exchange and not subject to any listing requirements.
- †‡ Dealt in under Rule 163(3).
- # Price at time of suspension.
- ¶ Indicated dividend after pending scrip and/or rights issue: cover relates to previous dividend or forecast.
- ♦ Merger bid or reorganisation in progress.
- ♣ Not comparable.
- ♠ Same interim: reduced final and/or reduced earnings indicated.
- § Forecast dividend; cover on earnings updated by latest interim statement.
- ‡ Cover allows for conversion of shares not now ranking for dividends or ranking only for restricted dividend.
- ☆ Cover does not allow for shares which may also rank for dividend at a future date. No P/E ratio usually provided.
- ** Regional price.
- ‖ No par value.

§§ Yield based on assumption Treasury Bill Rate stays unchanged until maturity of stock. ☆☆ Available only to UK pension schemes and insurance companies engaged in pension business. a Tax free. b Figures based on prospectus or other official estimate. c Cents. d Dividend rate paid or payable on part of capital; cover based on dividend on full capital. e Redemption yield. f Flat yield. g Assumed dividend and yield. h Assumed dividend and yield after scrip issue. j Payment from capital sources. k Kenya. m Interim higher than previous total. n Rights issue pending. q Earnings based on preliminary figures. s Dividend and yield exclude a special payment. t Indicated dividend; cover relates to previous dividend, P/E ratio based on latest annual earnings. u Forecast dividend: cover based on previous year's earnings. v Tax free up to 30p in the £. y Dividend and yield based on merger terms. z Dividend and yield include a special payment: Cover does not apply to special payment. A Net dividend and yield. B Preference dividend passed or deferred. C Canadian. E Minimum tender price. F Dividend and yield based on prospectus or other official estimates for 1981-82. G Assumed dividend and yield after pending scrip and/or rights issue. H Dividend and yield based on prospectus or other official estimates for 1980-81. K Figures based on prospectus or other official estimates for 1981-82. M Dividend and yield based on prospectus or other official estimates for 1980. N Dividend and yield based on prospectus or other official estimates for 1981. P Figures based on prospectus or other official estimates for 1980-81. Q Gross. T Figures assumed. Z Dividend total to date.

Abbreviations: xd ex dividend; xc ex scrip issue; xr ex rights; xa ex all; xf ex capital distribution.

REGIONAL MARKETS

The following is a selection of London quotations of shares previously listed only in regional markets. Prices of Irish issues, most of which are not officially listed in London, are as quoted on the Irish exchange.

Albany Inv. 20p	40xd	......	**IRISH**		
Bertam	14	......	Conv. 9% '80/82	£92⅞	−⅛
Bdg'wtr. Est. 50p	435	......	Nat. 9¾% 84/89	£74	......
Craig & Rose £1	£11½	−¼	Fin. 13% 97/02	£79	+⅛
Fife Forge	63	......	Alliance Gas	80	......
Finlay Pkg. 5p	19	......	Arnott	235xd	......
Graig Ship. £1	£21	+1	Carroll (P.J.)	88	......
Higsons Brew	73xd	......	Concrete Prods.	98	......
Holt (Jos) 25p	480	+15	Heiton (Hldgs.)	28	......
I.O.M. Stm. £1	155	−2	Ins. Corp.	420	......
Pearce (C. H.)	950	......	Irish Ropes	53	......
Peel Hldgs.	100	......	Jacob	56	......
Sheff. Refrshmt	101	......	T.M.G.	15	......
Sindall (Wm.)	185	+10	Unidare	100	......

OPTIONS

3-month Call Rates

Industrials		House of Fraser	14	Utd. Drapery	6½
A. Brew	6½	I.C.I.	20	Vickers	15
BOC Intl.	11	"Imps"	7	Woolworths	5
B.S.R.	4½	I.C.L.	6		
Babcock	11	Ladbroke	30	**Property**	
Barclays Bank	36	Legal & Gen.	20	Brit. Land	8
Beecham	15	Lex Service	10	Cap. Counties	11
Blue Circle	35	Lloyds Bank	28	Land Secs.	37
Boots	20	"Lofs"	4½	MEPC	20
Bowaters	24	London Brick	7	Peachey	15
Brit. Aerospace	14	Lucas Inds.	18	Samuel Props.	13
B.A.T.	25	"Mams"	20	Town & City	2¼
Brown (J.)	7	Mrks. & Spncr	9		
Burton Ord.	12	Midland Bank	26	**Oils**	
Cadburys	7½	N.E.I.	7	Brit. Petroleum	36
Courtaulds	6	Nat. West. Bank	32	Burmah Oil	16
Debenhams	8	P & O Dfd.	13	Charterhall	9
Distillers	17	Plessey	30	KCA	22
Dunlop	7½	Racal Elect.	34	Premier	10
Eagle Star	22	R.H.M.	5	Shell	34
F.N.F.C.	3½	Rank Org. Ord.	18	Tricentrol	30
Gen. Accident	30	Reed Intnl.	20	Ultramar	44
Gen. Electric	60	Sears	5		
Glaxo	28	Tesco	5½	**Mines**	
Grand Met.	14	Thorn EMI	30	Charter Cons.	21
G.U.S. 'A'	44	Trust Houses	18	Cons. Gold	45
Guardian	32	Tube Invest.	18	Lonrho	9
G.K.N.	16	Turner & Newall	10	Rio T. Zinc	45
Hawker Sidd	25	Unilever	50		

"Recent Issues" and "Rights" Page 18

This service is available to every Company dealt in on Stock Exchanges throughout the United Kingdom for a fee of £600 per annum for each security

FINANCIAL TIMES

Monday June 1 1981

Bangladesh near civil war after rebellion

BY K. K. SHARMA IN NEW DELHI AND KEVIN RAFFERTY IN HONG KONG

BANGLADESH was on the brink of civil war last night as the rebel garrison controlling the vital south-eastern port city of Chittagong appeared determined to defy an ultimatum to surrender *by the Dacca authorities.*

The rebel revolutionary council, headed by Maj-Gen Manzoor Ahmed, the garrison commander who is said to have assassinated President Zia-ur Rahman early on Saturday, declared that it had the key support of the Bangladesh navy, which is based in Chittagong.

But the Dacca Government, which gave the rebel troops until early today to surrender or face the consequences, insisted that no navy or air force personnel were involved in the rebellion.

The *ultimatum was said to* have produced a positive response, with several hundred armed personnel taking advantage of an amnesty offer and giving up their arms. But it was unclear why the ultimatum had been twice extended and why Government forces had failed to move immediately to quell the revolt.

The assassination of President Zia-ur, who had been the country's effective ruler since November 1975, has illustrated the underlying fragility of Bangladesh and, in particular, the divisions within the armed forces.

The growing prospect of a civil war in the over-crowded and economically impoverished country is of particular concern to India, which has anxiously watched a recent "hate India" campaign in Bangladesh and is worried about repercussions in neighbouring areas of an influx over recent months *of dissatisfied* Bangladeshis.

The New Delhi Government yesterday strongly denied that it had had any hand in the assassination of the 45-year-old Bangladeshi President. The recent return to Dacca from exile in New Delhi of the daughter of former Bangladeshi President Mujibur Rahman had aroused suspicion of Indian motives.

There were unconfirmed reports last night of isolated clashes and numerous deaths at various points in Bangladesh. Trops were said to be headed from Dacca to Chittagong, *while rebel troops were* reported to have set up road blocks in their path.

Dacca itself was reported to be calm, with all internal and international flights operating on schedule. The regime succeeding President Zia-ur is apparently in control of the rest of the country outside Chittagong.

President Zia-ur Rahman is understood to have been slain along with a number of his aides and bodyguards as they slept at the circuit house in Chittagong. The President's body is still in rebel hands.

Fragile peace shattered, Page 13

FINAL EFFORT TO SAVE SIZEWELL B PROJECT

Costs threaten nuclear plant

BY DAVID FISHLOCK, SCIENCE EDITOR

A JOINT review of the reference design for the Sizewell B, Suffolk, nuclear power station will be made by the nuclear industry this summer in what some see as a desperate final effort to prevent the project from *falling* apart.

The Central Electricity Generating Board, as customer, the National Nuclear Corporation, as designer, and the UK Atomic Energy Authority expect to participate in the review.

Any possibility of the corporation eventually being given "total project management" for the Sizewell B project—as was stipulated by Mr. David Howell, Energy Secretary, and endorsed by Mr. Denis Rooney, who recently resigned as the corporation's chairman—appears to be rapidly receding.

The main purpose of the joint review is to try to trim a construction cost which threatens to offer little or no advantage over the capital cost of the advanced gas-cooled reactor (AGR).

The NNC's reference design for Sizewell B was submitted to the Government's nuclear inspector only in April — six weeks late on its original schedule.

In the opinion of one CEGB executive, the design is "too *big, too complicated* and too costly."

The NNC admits that, in its efforts to keep to a very tight design schedule in preparation for the promised public inquiry into the project late next year, it has been unable to reduce costs as much as it wished.

Indications are that the difference in construction costs between Sizewell B and an identical plant in the U.S. will considerably exceed the 34 per cent the CEGB gave to the Commons Committee on Energy last year.

The increase could seriously erode the estimated 10 to 15 per cent advantage on capital costs claimed by the NNC for the pressurised water reactor (PWR) over the AGR.

An example on where nuclear energy executives believe the Sizewell B reference design might be refined is in the reduction of the amount of concrete shielding required to protect maintenance staff.

One estimate is that Sizewell B has about twice as much concrete shielding as Callaway, the U.S. plant on which it is based.

Some industry leaders believe that the amount of shielding must be reduced considerably by buying the latest designs of major PWR components from abroad. These are expected to need a minimum of maintenance *during their lifetime.*

But British nuclear component manufacturers are unlikely to be happy with the possibility that about 50 per cent of the primary circuit—the high-technology portion—of Sizewell B's reactor may be purchased overseas.

Another possibility is that major changes might be made in the safety provisions by cutting the number of independent emergency core cooling systems from the present four. However, this would require a revision of the safety case submitted to the nuclear inspectors and lead to further delay.

Atkins says UDA may be banned

By Margaret Van Hattem

THE DISCOVERY last week of a major arms cache in the East Belfast headquarters of the Ulster Defence Association prompted a Government warning yesterday that the paramilitary organisation could be declared illegal.

In a low-key response to the find — which included 550 rounds of ammunition, six home-made submachine guns, a Thompson submachine gun and *a .45 revolver—Mr Humphrey* Atkins, the Northern Ireland Secretary, said the Government would re-examine its decision of last February not to proscribe the organisation.

"There is no doubt that since the find a few days ago of weapons in the UDA heaquarters, the matter clearly has to be re-examined and I'm doing just that," he said in a BBC radio interview.

Mr Atkins also accused Mr Ian Paisley, the Ulster Protestant leader and MP, of being less than sincere in his condemnation of the continuing talks between the London and Dublin Governments as a "sell-out" of Protestant interests.

"I don't believe he really thinks I or the Prime Minister have this objective in mind because we have both repeated again and again that the constitutional position of Northern Ireland is not being discussed," he said.

While carefully avoiding any direct criticism of Catholic leaders *in the province,* Mr Atkins suggested that Cardinal Tomas O'Fiaich, the Roman Catholic Primate of Ireland, was guilty of muddled thinking in his tacit support for the hunger strikers in the Maze prison.

"I don't know that he's got it clear what the hunger strikers are all about," Mr Atkins said. The hunger strikers wanted only one thing—political status. Anyone who thought lesser concessions would satisfy them was guilty of wishful thinking.

Healey launches plan for recovery

BY MARGARET VAN HATTEM, LOBBY STAFF

MR DENIS HEALEY yesterday launched a seven-point plan for halting Britain's economic decline, including a call for an immediate cut from 12 to 10 per cent in minimum lending rate, a reduction in VAT from 15 to 8 per cent.

At the start of what promises to be a stormy week for the party, Mr Tony Benn, his main rival for the deputy leadership of the Labour Party, signalled he was squaring up for a row with the rest of the Shadow Cabinet on Wednesday.

Anticipating attacks from his front-bench colleagues over his alleged disloyalty for voting against the Government in the recent defence debate instead of abstaining, Mr. Benn used Weekend World, the London Weekend Television programme, to attack the Shadow Cabinet and to challenge its constitutional role.

In a speech to the Post Office Engineering Union conference in Blackpool, Mr Healey pointedly avoided any reference to the contest for the deputy leadership and concentrated on presenting an alternative to the Government's economic policies.

If a world recovery came while the Tories were still in power, he said "British industry will face it with clapped-out machinery and desperately short of the skills required." Immediate steps required *merely to "slow down the slide* to catastrophe," included:

- Interest rate cuts to reduce mortgage costs, promote house building, lower the sterling exchange rate to more competitive levels and to promote new investment and create jobs.
- Use of North Sea oil revenues to improve infrastructure and start the Channel Tunnel.
- Restoration of public services.
- Government help for new technology, as provided in France, Germany and Japan.
- Huge expansion of industrial training.
- Cuts in the national insurance surcharge.
- Cuts in VAT to offset higher *oil prices and price increases* caused by a weaker pound.

He said if these proposals were incorporated into a determined campaign by the Labour movement, they could save a million from the dole queue and leave the next Labour Government a less-daunting legacy.

Mr Healey was less reticent in a BBC radio interview earlier about the deputy leadership contest and said he was already assured of almost 2m of the 6m union votes, whereas Mr Benn had barely 300,000. Mr Benn would get the support of most of the constituency parties, he added, "but I'll get more constituency votes than he'll get MPs.

Mr Benn, however, claimed that 75 to 80 per cent of the party and the unions supported

EEC steel price action planned

By Alan Pike

BRITISH steel consumers are considering action in the European Court of Justice over what they regard as discrimination on prices of imports to the EEC from third countries.

The British Iron and Steel Consumers' Council has been involved in a long-running and so far unsuccessful disagreement with Viscount Etienne Davignon, the Industry Commissioner, over the basic import prices at which steel can be purchased from sources like South Korea, South Africa and South America.

These prices are calculated in European currency units and then converted into national currencies. The dispute is over the formula used to convert into national currencies, which the British consumers believe does not accurately reflect the true parity of a strong pound.

The council says the anomaly, against which it has been running a long campaign, results in British consumers having to pay up to 24 per cent more than those in Italy for third country steel, and 17 per cent more than in West Germany.

Steel subsidies, Page 2

Civil servants to meet Soames

BY PHILIP BASSETT, LABOUR STAFF

CIVIL SERVICE union leaders are expected to meet Lord Soames, the Lord President of the Council, today after a week-end of talks on pay with Ministers and officials, and may possibly ask to see the Prime Minister as the dispute enters its 13th week.

Discussions started on Friday and continued throughout the *week-end after an arrangement* of the agenda which removed the threat of an early walk-out by some more militant union leaders.

The Government effectively started from the position that it was winning the dispute, and gave few indications to leaders of the Council of Civil Service Unions that it was prepared to move from its previously stated position.

Some hopes of the dispute *drawing to a close had been* raised by the continuation of the talks. But union leaders insisted that, on the basis of what the Government had to say, such hopes were groundless.

The crucial area of the Government's 7 per cent offer for this year was finally approached yesterday, following discussions on the proposed flexibility over next year's cash limit and on the offer of an outside inquiry into Civil Service pay. Union leaders pressed for clarification as to precisely how the cash limit would impinge on next year's deal, and the terms of reference, composition and status of an inquiry.

However, Mr Barney Hayhoe, Civil Service Minister, who led yesterday's talks for the Government after leaving the running to officials only on Saturday, made it clear that there was no possibility of an improvement in the money on offer for this year.

While some ministers have argued the case for taking advantage of an extra ½-1 per cent in this year's cash limit pay provisions made available by accelerated manpower reductions, the firm line of the Prime Minister against such a move has persuaded some ministers who were keen on the idea to withdraw their support.

People's March

Continued from Page 1

Labour movement which are highlighted by the deputy leadership contest could be heard distinctly.

Several speakers took the same line as Mr. Jimmy Milne, Scottish TUC general secretary, who called for a return of a Labour Government "but not one of the kind we have had in the past, not one dedicated to running capitalism."

In the most thoughtful speech of the rally Mr. Len Murray, TUC general secretary, said the message of the need for change had to be delivered not just to the Government but to "the employed men and women who are still indifferent to the plight of the unemployed."

As for the 500 marchers their unemployed plight was at least temporarily alleviated by a month of heroes' welcomes at stops on the way

Mr Larry Carty, the blind man who led the march into Trafalgar Square, said the marchers had enjoyed "*fantastic receptions*" — except in Watford, where the workers, he felt, were snobbish.

Tighter monetary control urged in Italy

BY JAMES BUXTON IN ROME

ITALY'S CENTRAL BANK governor has strongly attacked the economic policies of past *governments and called* for tighter control of Government borrowing, and for wage restraint and the independence of the bank from the Treasury.

Dr Carlo Ciampi, Governor of the Bank of Italy, was introducing the bank's 1980 annual report in an atmosphere clouded by last week's resignation of Sig Arnaldo Forlani as Prime Minister, and marked by the absence of some key figures in the economic and financial establishment who have been implicated in the scandal over the P-2 masonic lodge which caused the collapse of the Government.

Dr. Ciampi said Italy's 20 per cent inflation rate was no longer tolerable. It had changed the very basis of the currency, depriving it of its role as a measure of value, and leaving it only the humble function of a means of payment.

He was speaking three days after Italy introduced an emergency system of 30 per cent import deposits for the next four months. This was necessary, he said, because of the alarming trade deficit—running at L5,000 bn (£26m) in the first three months of this year, and the fact that Government's monthly borrowing requirement was running at L4,000bn a month.

On an annual basis, this would mean a Government deficit of L48,000bn against the official target of L37,500bn. A sharper reduction in spending will be needed if the target is to be met, Dr Ciampi said.

Yet the Government had only last week introduced the legislative proposal needed to cut the deficit—at the same time as it resigned. These measures should have accompanied the 6 per cent devaluation of the lira's central parity in the European Monetary System on March 22.

Dr Ciampi said that to check inflation the Bank of Italy must have full autonomy of the Treasury in the creation of money. *In particular, it should* [illegible] be obliged to buy up Treasury bills which the Treasury failed to sell to the public.

The governor attacked the Treasury for proposing to index its Budget deficit to inflation, calling this a surrender to monetary debasement.

Dr Ciampi said the Government must tailor its public spending to the needs of monetary policy and take a firmer role in the national wage negotiations in order to reduce inflationary pressures.

Forlani bid, Page 2

Weather

UK TODAY

OUTBREAKS of rain spreading from the South-West.

London, S. and N. England, the Midlands, E. Anglia
Fog patches with sunny intervals. Outbreaks of rain. Max. 17C (63F).

S.W. England, Channel Isles, S. Wales
Mostly cloudy with coastal fog. Outbreaks of rain with clear intervals later. Max. 16C (61F).

N.W. England, N. Wales, Lakes, S.W. Scotland, Ulster, the Highlands
Sunny intervals and scattered showers, becoming heavy and widespread. Max. 16C (61F).

Outlook: Sunny intervals

WORLDWIDE

		Y'day midday °C	°F			Y'day midday °C	°F
Ajaccio	S	23	73	Locarno	F	21	70
Algiers	C	22	72	London	C	17	63
Amsdm.	F	24	75	L. Ang.†	C	18	64
Athens	F	29	84	Luxmbg.	S	24	75
Bahrain	S	31	88	Luxor	S	36	97
Barclna.	F	23	73	Madrid	C	24	75
Beirut	S	24	75	Majorca	S	27	81
Belfast	C	16	61	Malaga	S	21	70
Belgrd.	S	28	82	Malta	S	26	79
Berlin	F	24	75	M'chstr	R	15	59
Biarritz	F	20	68	Miami†	F	27	81
Bmghm.	R	15	59	Milan	S	25	77
Blackpl.	R	17	63	Moscow	F	19	66
Bordx.	C	20	68	Munich	S	24	75
Boulgn.	C	15	59	Nairobi	C	21	70
Bristol	F	18	64	Naples	S	28	82
Brussels	F	26	79	Nwcstl.	C	18	64
Budpst.	F	26	79	N York†	C	22	72
Cairo	S	36	97	Nice	S	23	73
Cardiff	C	17	63	Nicosia	S	31	88
Cas'b'ca	C	20	68	Oporto	C	18	64
Chicg.†	F	7	45	Oslo	S	18	64
Cologne	F	27	81	Paris	F	26	79
Conhgn.	F	18	64	Perth	F	16	61
Corfu	S	29	84	Prague	S	24	75
Denver†	C	12	54	Rykjvk.	S	9	48
Dublin	C	16	61	Rhodes	S	24	75
Dbrvnk.	S	24	75	Rome	S	26	79
Ednbgh.	C	16	61	Salzbrg.	S	26	79
Faro	S	21	70	S'ciscot	F	11	52
Florence	S	28	82	Singapr.	F	31	88
Frankft.	S	26	79	Stckhm.	F	20	68
Funchal	F	22	72	Strasbg.	F	26	79
Geneva	F	22	72	Sydney	R	15	59
Gibrltr.	S	23	73	Tangier	S	21	70
Gl'sg'w	R	16	61	Tel Aviv	S	24	75
G'rnsey	C	15	59	Tenerife	S	22	72
Helsinki	F	19	66	Tokyo	C	18	64
H. Kong	C	27	81	T'r'ntot	F	9	48
Innsbrk.	S	26	79	Tunis	S	28	82
Invrnss.	C	18	64	Valencia	C	23	73
I.o.Man	R	12	54	Venice	S	23	73
Istanbul	S	24	75	Vienna	S	26	79
Jersey	C	18	64	Warsaw	F	20	68
L. Plms.	S	22	72	Zurich	F	24	75
Lisbon	F	22	72				

C—Cloudy. F—Fair. Fg—Fog. H—Hail. R—Rain. S—Sunny. Sl—Sleet. †Noon GMT temperatures.

THE LEX COLUMN

A how-de-do at the Savoy

The following unfinished fragment of a hitherto unsuspected Savoy comic opera by W. S. Gilbert and Arthur Sullivan has just come to light. The opera has never been performed until now, but certain songs appear to bear a strong resemblance in style to numbers which have become familiar in other works.

RUDDICHEEK
or
THE PIRATE OF PARK LANE
Dramatis Personae.

SIR HUGH (once Lord Mayor of London)
SIR CHARLES (a motorway cafe proprietor)
GILES (a shepherd)
BRIDGET (a D'Oyly Carte)
ROSE MAYBUD (a maiden)
Chorus of shareholders

SCENE 1—The courtyard of an inn called the Savoy, just off the Strand. Enter ROSE MAYBUD and SIR HUGH, with chorus of shareholders ranged in front of the inn.

ROSE. Oh, what an elegant hotel! It will be so wonderful to have my wedding reception here. But what are these terrible stories I hear about a *change of management?*

SIR HUGH. Alas, it could come true. One called Sir Charles of the company of Trusthouse Forte has been offering large sums to all and sundry. But he is quite unsuitable to be the proprietor of a distinguished establishment like ours, with its special quality and tradition.

SONG—Sir Hugh

I am the very model
Of a good hotel proprietor;
The place is like it used to be,
Except that it's much quieter.
For those who're rich, and Elaine Stritch.
Our hotel is a wonderland—
But don't expect to find us
On a by-pass outside Sunderland!

ALL: But don't expect to find us, etc.

We're very good at catering
For PR sprees or marriages,
And if you find you need to be
A few miles west, try Claridge's.
Of course I wish our restaurants and suites and rooms were hired more,
But whatever would some upstart want
To come and get me fired for?

ALL: Whatever would some upstart, etc.

I know the cash we're losing is
Depleting the group coffers. viz.
My latest plan to stay afloat
By selling rooms as offices.
Old Clore, Grand Met, J. Rothschild,
And Trafalgar House are history,
And why new bids keep coming now
Is really quite a mystery!

ALL: And why new bids keep coming, etc.

FIRST SHAREHOLDER: Please, please, never let your hotels be taken over by a commercial enterprise group. They would be destroyed.

SECOND SHAREHOLDER *(an Italian)*: I would prefer to see the whole building wired to be blown up rather than accept Trusthouse Forte.

THIRD SHAREHOLDER *(an officer of the Inner London Probation and After Care Service)*: I am a mere holder of 50 "A" ordinary shares, but feel that I must express my support for the Savoy Hotel against the ambition of THF. God confound their knavish tricks!

SONG—Rose

Here's a how-de-do!
If he acquires you,
The special quality we cherish
Will inevitably perish—
At the Connaught, too.
Here's a how-de-do!

Here's a pretty mess!
In a month or less,
Seven inches off the bedding.
I won't come here for my wedding!
The Dorchester, I guess.
Here's a pretty mess.

Here's a state of things!
A conglomerate with strings:
Directors in the Penthouse Suite,
Will have to find another seat,
Not sell off more wings.
Here's a state of things!

Enter Sir Charles, to chorus of boos.

SIR CHARLES: I am so glad to see you are all so loyal to Sir Hugh. But I am confident you will soon learn to be loyal to me!

SONG—Sir Charles (*singing forte*)

A caterer am I,
Not just with ice cream cafes.
English, French and Taffies—
I tempt the world to buy.

My catalogue is long,
From motorways to Five Star,
In France and Guatemala,
And also in Hong Kong.

Your future lies with me,
Although you mutter darkly
I'll soon downgrade the Berkeley,
It's all untrue, you'll see!

I watch your curtains fray,
Your rooms a little tatty;
It's not just that I'm catty—
Bad marks from E. Ronay!

I pledge my heart and soul
To make this splendid-looking;
I'll bring computer booking,
Not portion control!

ROSE: You're just a beastly opportunist! Just because the company has lost money you try to take it over. But what you fail to realise is that the shareholders don't want the company to make any money.

ALL SHAREHOLDERS: No, we don't! And please don't pay us any dividends.

SIR HUGH: I think we can all relax a little. I will explain to Sir Charles how we can still retain our independence.

SONG—Sir Hugh

When I was a lad I served a term,
As office boy to an attorney's firm.
All the time I took copious notes,
On company law and shareholders' votes.
I found my way to security,
Few votes for you and lots for me!

CHORUS: He found his way, etc.

One share, one vote would be a trap,
The predators their teeth would snap!
All the place would smell of doom,
Even in the middle of the River Room!
We owe it all to "A" and "B,"
Few votes for you but lots for me!

CHORUS: He owes it all, etc.

Bidders here have not been lacking,
But we've found a way to send them packing.
They've shuffled shares from one to another,
Yet a chink in our armour they won't discover.
This is my version of democracy,
Few votes for you but lots for me!

CHORUS: This is his version, etc.

Our staff back us to a large extent,
American Bar—hundred per cent!
A similar pattern elsewhere in balloting,
Though only 57 per cent in valeting!
But I don't need popularity,
Few votes for you but lots for me!

CHORUS: But he doesn't need, etc.

ROSE: But we can't be sure what will happen after next Wednesday when . . .

At this point the manuscript suddenly breaks off. The subsequent development of the plot remains unknown.

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